

FLIGHT

The
**AIRCRAFT
ENGINEER
&
AIRSHIPS**

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Founder and Editor : STANLEY SPOONER

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"FLIGHT" PHOTOGRAPHS.

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1928

- Jan. 19 "The Problem of Noise in Civil Aircraft and the Possibilities of its Elimination." Maj. W. S. Tucker, before R.Ae.S. & Inst.Ae.E.
- Jan. 26 "Schneider Trophy Machine Design. Mr. R. J. Mitchell and Capt. G. S. Wilkinson, before R.Ae.S. & Inst.Ae.E.
- Feb. 1 "Aircraft in Small Wars." Wing-Comdr. R. H. Peck, before Royal United Services Inst.
- Feb. 2 "Ground Transport for an Air Organisation." Flt.-Lieut. R. E. H. Allen, before R.Ae.S. & Inst.Ae.E.

EDITORIAL COMMENT



THE subject of simple formulæ suitable for estimating top speed for handicap racing purposes was dealt with briefly last week, and we are glad to find that the subject is proving of considerable interest to our readers. In this issue we deal again with the question of the kind of formula to be adopted, giving various formulæ that might form a basis for discussion. Two simple formulæ recommended by Professor E. P. Warner in his book "Aerodynamics," or rather one formula and a slight variation thereof, are given, the basis used being "wing power." Another formula, due to Lieut. Walter Diehl, is also mentioned, and would seem to promise good agreement between estimated and actual speeds. It suffers, however, from the disadvantage, from the point of view of handicapping for the King's Cup Race, that it necessitates weighing the machines to obtain the power loading, and measuring the minimum speed. The latter particularly might rule it out for our special purpose, even if it is a useful formula in speed estimations generally.

Mr. C. C. Waiker, whose formula it is suggested to use this year in a modified form, makes use of $B.H.P./Span^2$, and for a simple formula it certainly seems to give good results on all machines of fairly normal design. It is, however, just possible that by building a "freak" machine, in which the wing or wings were little more than large-span spars with a fairing around them, the formula could be "cheated" by a wide margin. It is not certain that such a "freak" would really be objectionable, for even with heavy wing loading the large span and consequent low induced drag would probably enable the machine to get off reasonably well. The landing speed would, however, be likely to be high, and that is scarcely a feature to be encouraged.

To us it seems that area as well as span should be taken into consideration. We have not yet had an opportunity to study the problem in detail, but it might be possible to evolve a formula including both $span^2$ and area, in their relation to B.H.P., thus combining the "wing power" and "span power" formulæ.

Perhaps some of our readers will look into the subject and make suggestions for the exact form which such a formula might take. For a start it would appear that $\frac{B.H.P.}{area \times span^2}$ could be used, although a fair comparison of high-power and low-power machines could not be made on a simple cube root basis, but would necessitate some exponent other than .333.

Admittedly there is much to be said for Mr. Walker's $span^2$ formula, and in a letter published in our Correspondence Columns this week Mr. Walker contributes something further to the discussion. His remarks concerning the reasons for the high-power machines being "out of it" last year are interesting in that he calls attention to a fact that may not have been given sufficient attention: that this was due to *all* speeds being under-estimated, and that thus the race did not take as long as contemplated, consequently not giving the fast machines time to overtake the slower.

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The R.A.F. Display It might be considered early days yet to discuss the R.A.F. Display at Hendon, but a correspondent who does not wish his name mentioned points out that now is the time for those concerned with organising the Display to "have their imagination stirred up." Some of our correspondent's suggestions seem well worth consideration, and we shall, therefore, refer briefly to them here.

To begin with, our correspondent thinks that although "stunt" flying has a wide appeal, and was rightly included last year in considerable quantities (and excellent quality), nothing interests the public so much as racing, and he suggests that the racing events of the first Pageant should be re-introduced, including a race for new types.

On the subject of formation flying, our correspondent expresses the view that while last year's formation flying by D.H.9A's and "Foxes" was marvellous it might be better, in view of the fact that only a small percentage of the tax-paying public goes to Hendon, instead of keeping all the formation flying in the neighbourhood, to send, say, three multi-engined squadrons or five or six single-engined squadrons around the outskirts of London, possibly finishing up with a flight over the Houses of Parliament.

The suggestion is also made by our correspondent that a slow-flying race around the aerodrome might be arranged for Bristol fighters or whatever types are by then fitted with slots and best suited for this purpose. Certainly such a race should be amusing to watch, and presumably it could be flown at quite a low altitude, thus giving the public an opportunity of closely watching the machines.

Summing up, our correspondent concludes: "I feel that whilst every endeavour must be made to make the Display at Hendon more and more attractive—a very difficult task I agree—at the same time, when we have this concentrated force at Hendon it should be used in stirring up the community in general, and lastly one has to study the average intelligence of the individual who visits Hendon. He can, for the price of 6d., I believe, purchase the best got-up programme that it has ever been my fortune to examine, but because of his interest in watching things in the air, he is given little or no opportunity to read the description of the event which is taking

place. Half the public, therefore, do not appreciate the tactics, or in other words the why and wherefore of what is taking place.

"At the present moment most aircraft have open exhausts, or exhaust pipes which are of no silencing value, in addition to which 80 per cent. of the noise is due to the propeller. I suggest that the number of loud speakers be trebled, and that they be so fixed that on the day of the Display they could be swung round, according to whichever direction the wind was blowing. It will then be a simple matter for Mr. John Citizen merely to cock his straw hat on one side, gaze into the sky whilst the tactics and manoeuvres are being described to him through the microphone. To those who live in close proximity to Golders Green, they will have the added advantage of being saved 6d.!"

Our correspondent's reference to John Citizen's straw hat seems to indicate that he expects summer this year to fall on the day of the Display! Certainly the Air Ministry is in charge of the weather nowadays, but even so, this is rather a bold assumption to make. Personally, we are not over fond of the suggestion for increasing the number or the power of the loud speakers. The noise made by them is already sufficiently trying, and if the volume were to be trebled, the public enclosures would become well-nigh untenable. Presumably, however, trebling the number would not increase the volume but would merely ensure a better distribution of the "racket."

At any rate, these suggestions are offered to those concerned with the organisation of the programme, and if all are not acted upon, they may at least open up some new line of thought which will lead to varied and ever better programmes. Not, as our correspondent admits, an easy task in view of the excellence of previous Display programmes.

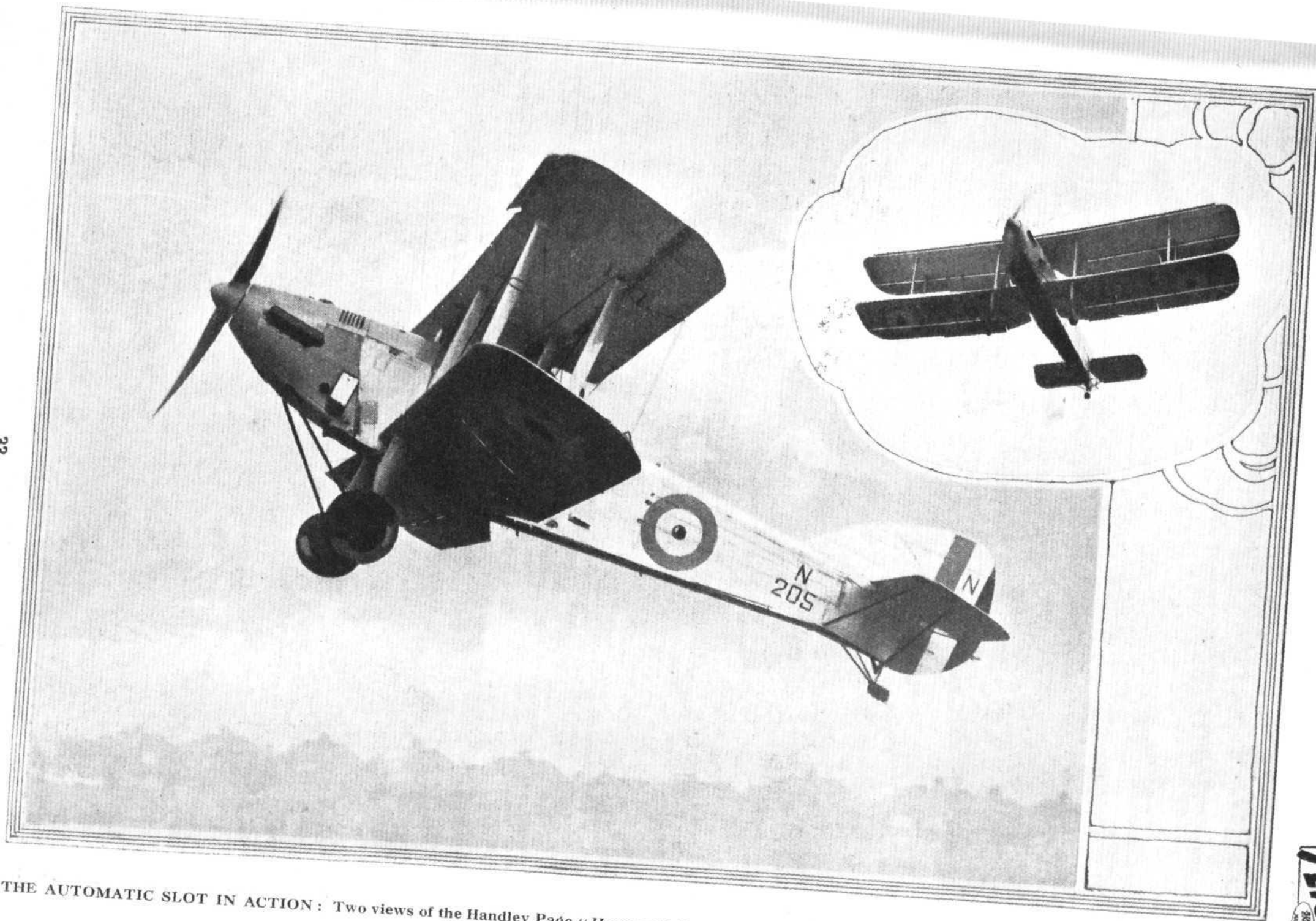
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Anti-Stall Devices

Whatever safety devices, such as slots, &c., are produced, it is likely always to remain one of the fundamental features of an aeroplane that it will stall. It may do so at a large angle, and it may do so at a small angle. It may do so gently, or it may do it suddenly and violently. But it seems fairly certain that it will always stall. Some form of warning that the machine is about to stall, therefore, becomes desirable. Even with Handley Page automatic slots, with full control long after the stall has been reached, it is rather desirable that the pilot should know when his machine is stalling, because in the stalled condition it is losing height rapidly. We describe in the present issue a stall warning device which is one of the simplest and neatest which we have seen so far.

The new stall-warning device consists of a small wind vane which, by its travel under the pressure of the air speed, is caused to make or break contact, and in so doing sounding or silencing a buzzer. The whole outfit weighs but a few ounces. It can be used on machines not equipped with wireless, and in a slightly modified form it can be used on aircraft which carry wireless, the normal earphones in that case conveying the sound of the buzzer to the pilot's ears, without the normal wireless reception being interfered with in the slightest degree.

The only criticism that might be directed against the new instrument is that it depends upon air speed and not upon angle of incidence. Thus, if set to give warning for a machine fully loaded, the buzzer will sound needlessly early when the machine is flying light. That, however, is not a serious drawback.



THE AUTOMATIC SLOT IN ACTION: Two views of the Handley Page "Harrow II," with Napier "Lion" engine. The position of the elevator indicates that the machine is not being "hoicked" into the air.

["FLIGHT" Photographs



THE HANDLEY PAGE "HARROW" MARK II

Napier "Lion" Engine

It is now several weeks since the first public demonstration was given at Cricklewood of the new Handley Page automatic slot fitted to a Bristol Fighter. In the meantime, the automatic slots have been or are being experimentally fitted to quite a number of aeroplanes, and some interesting test

The "Harrow II" is a tractor biplane of fairly normal type, but in which quite obviously considerable care has been taken to "clean up" the aerodynamic design by reducing projections to a minimum. The nose in particular gives evidence of this, the tapering form offering a good entry for the air and



THE HANDLEY PAGE "HARROW II" : Three-quarter front view.

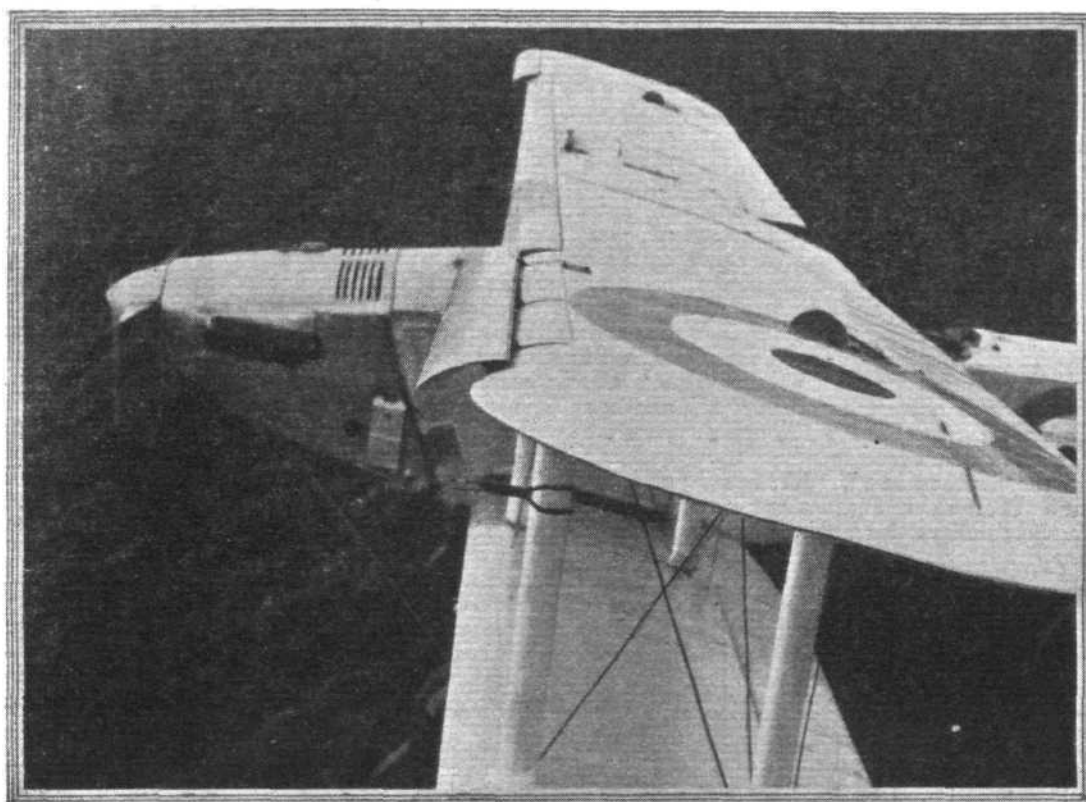
results should be available before long. One of the first machines to be so fitted was the new Handley Page "Harrow" Mark II, a torpedo or bombing machine fitted with Napier "Lion" engine, with which some very excellent results are believed to have been obtained. The machine has not hitherto been available for description, but it has now become possible to refer to it in a general way.

causing a minimum of interference between the propeller and the fuselage. The two cockpits also indicate care in aerodynamic design, and are as nearly "faired in" as is possible in a military machine which has to have its rear guns exposed and its gunner able to stand up and fire.

It is, however, in effect of the slots that the greatest interest of this machine lies. Full performance figures may not be



THE HANDLEY PAGE "HARROW II" : Side view.



Automatic Slots :
View showing the
wing tip slots on
the Handley Page
"Harrow II."

given at the moment, but that the slots are effective (and, incidentally, lift slots as well as control slots are fitted) appears evident from the fact that, although weighing well over 7,000 lbs. "all-up," the "Harrow II" has a speed range of from 50 m.p.h. (80 km./h.) to 136 m.p.h. (220 km./h.) with full load, a speed range of 2.72 to 1. For

the relatively heavy power loading such a range is remarkably good.

At present it is not possible to say exactly what "useful load" the machine carries, but the fact that it is designed, either as a torpedo plane or as a bomber indicates that this load is considerable.

TO DEVELOP AIR-COOLED "IN-LINE" ENGINES

FROM A.D.C. Aircraft, Ltd., of Regent House, Kingsway, London, W.C.2, we have received the following communication:—

"We have the pleasure of informing you that, in view of the success of the Cirrus engine, this company has decided upon the policy of producing other air-cooled 'in-line' aero engines of greater horse-power.

"The first contemplated will be of rather over 100 h.p. with the same reliability and simplicity as the Cirrus, and of about the same weight.

"The production of the Mark I Cirrus, the Mark II Cirrus, and the many modifications of both, has provided experience both as to innate qualities and production methods that justify the company in believing that it can certainly design and offer engines of even greater power which will in actual use attain the unqualified success of its present productions.

"The company desires to point out that the Cirrus engines produced by it have run a total of 30,000 hours and, fitted

in various machines, have now flown 2,000,000 miles, having throughout given unqualified satisfaction to the users.

"The company believes that intending users of moderate-powered engines will prefer to have those produced by an engine manufacturing company which has given practical proof of its ability to produce really reliable power units.

"Inasmuch as the company's engines are now in demand in nearly all countries of the world, this announcement of its future policy will have general interest."

For some time past there have been rumours of a "Cirrus III" which was believed to be coming along. The statement of A.D.C. Aircraft, Ltd., on the subject appears to confirm this rumour, and, in view of the great success of the earlier "Cirrus" models, it is to be expected that the new type, with a power of rather more than 100 b.h.p., will find many uses. We hope that air-cooled "in-line" engines of considerably greater power than that will materialise later, as this type lends itself well to installation in an aeroplane.

Aircraft Designer Going to Australia

His many friends will, we feel sure, learn with regret that Mr. W. S. Shackleton, designer of the now famous A.N.E.C. and Beardmore "Wee Bee" light 'planes, and chief designer to Wm. Beardmores for several years, is leaving England for Australia on Saturday of this week, January 21. For many months past Mr. Shackleton has been in indifferent health, and acting upon his doctor's advice he has decided to see if the Australian climate will suit him better than that of the Clyde.

Mr. Shackleton, who will be accompanied by his wife and two sons, has no very definite plans at the moment, but it is scarcely to be doubted that Australia will very soon find a way of making use of an aircraft designer so gifted as Mr. Shackleton undoubtedly is. We would bespeak a hearty

welcome for him and his family in Australia, and wish them "Bon Voyage."

Shakespeare Theatre Design

Miss E. SCOTT, whose design for the new Shakespeare Memorial Theatre has been accepted in face of considerable competition, was able to execute her first design without visiting the site by means of a plan and an aerial photograph.

Gold By Air

In the report of the Deputy-Master of the Mint for 1926, it states that recent developments in flying and the increasing tendency to transport gold by air are encouraging factors in an otherwise gloomy prospect of future gold production.

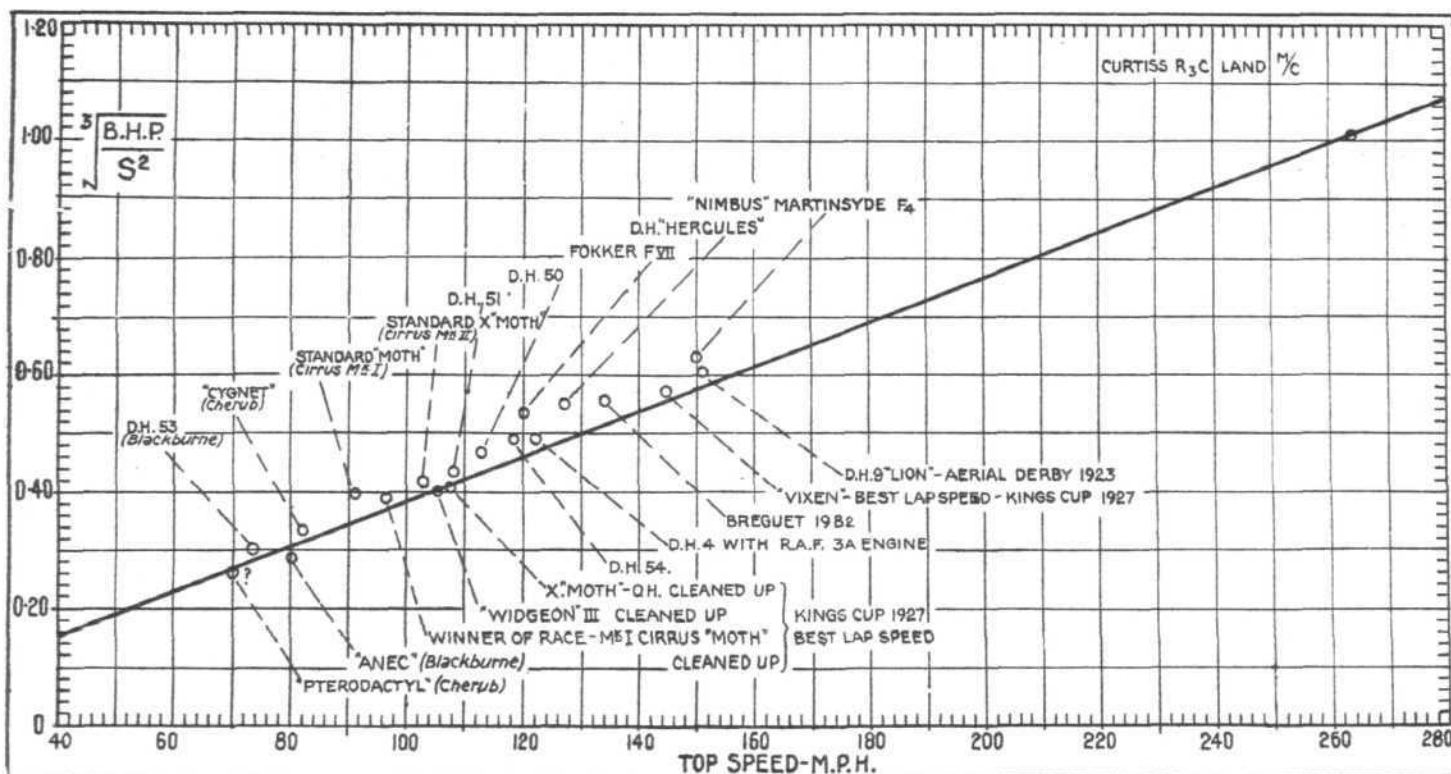
SPEED FORMULÆ FOR HANDICAPPING

In our Editorial Comment last week we referred to the subject of Handicap Formulæ for Racing, mentioning that the formula which it is suggested to use this year (although the actual formula has not yet been definitely settled upon), is based upon that suggested by Mr. C. C. Walker in THE AIRCRAFT ENGINEER of September 22, 1927. Our reference to this year's formula has created considerable interest, and it may thus be acceptable to our readers if we refer to the subject in rather more detail this week.

First of all, it may be recollected that Mr. Walker's original formula for speed was $V = K \times \sqrt[3]{\frac{\text{B.H.P.}}{\text{Span}^2}}$, where K had the value 261.3 and the "Span" for handicapping purposes was taken, in the case of a biplane, as $S_1 + .125 S_2$, S_1 being the larger and S_2 the smaller span. In order to avoid the necessity of referring back to the September 22, 1927, issue of THE AIRCRAFT ENGINEER (Technical Supplement to FLIGHT), we reproduce Mr. Walker's chart this week. On it

King's Cup would fare under the new formula now suggested. Such few examples as have been published in FLIGHT indicate fairly good agreement. For instance, on the new formula the Hawker "Cygnets," assuming a b.h.p. of 32, would be credited with a speed of 78.5 m.p.h. The Westland "Widgeon III" with "Cirrus II" engine would be estimated for handicap purposes to do 102.5 m.p.h. The de Havilland D.H.61, with a span of 52 ft. and a b.h.p. of 450 would be assumed to do 120 m.p.h., and the Gloster "Gamecock II," with "Jupiter" engine, would be credited with 180 m.p.h. The approximation in these cases is seen to be reasonably good, except in the last machine.

"Wing power," i.e., b.h.p. per square foot of wing area, is another basis that might be adopted. Mr. Walker has pointed out that this might lead to some rather grotesque aspect ratios by encouraging designers to adopt large chord so as to get credited with the extra area. In this connection it may be of interest to include a reference to some high-speed formulæ given by Prof. E. P. Warner in his book "Aero-



SIMPLE FORMULÆ FOR ESTIMATING TOP SPEED: Above is a reproduction of Mr. Walker's original chart, based on the formula $V = K \times \sqrt[3]{\frac{\text{B.H.P.}}{\text{span}^2}}$, where K has a value of 261.3 and the span $S = S_1 + 0.125 S_2$, S_1 being larger and S_2 smaller span of a biplane.

Mr. Walker plotted the known speeds of a number of machines from last year's King's Cup race. It will be seen that, generally speaking, the formula tends to over-estimate the speeds, especially in the case of high-power, small span machines.

Possibly as a result of this fact, it is suggested that the formula for this year's race should be slightly modified. Thus, the value of K, it is suggested, should be reduced to 260, while the biplane allowance has been increased to .265 S_2 . Both alterations tend towards lower handicap speeds. We referred briefly last week to the reasons which had led Mr. Walker to adopt span, or rather "span squared," instead of wing area, and it would seem that his views have been accepted as a basis for discussion of the subject. The new suggested

formula $V = 260 \times \sqrt[3]{\frac{\text{B.H.P.}}{\text{Span}^2}}$, the equivalent span being $S_1 + .265 S_2$, will tend to shift the curve of Mr. Walker's chart slightly towards the left, and would thus slightly under-estimate the speeds of some machines, and would reduce the amount of over-estimating others.

Unfortunately, we have not in our possession sufficient data of an adequate number of machines to enable us to judge as to how certain machines built since last year's race for the

dynamics." Thus, in chapter XVI Warner gives the following

formula for top speed: $V_{\text{max.}} = K_1 \sqrt[3]{\frac{P}{S}}$, where K has an

average value of 124, the speed V being given in m.p.h., and P and S indicating b.h.p. and wing area respectively. The author points out that a comparison between the result given by this equation (58) and the actual measured figures for a number of machines of various characteristics suggests the possibility of getting better agreement between the two by a modification in the exponent used. That has been done in the left-hand chart which we give on p. 37. In this, the full line

represents the formula $V = 127 \left(\frac{P}{S}\right)^{.39}$. The right-hand

curve has K = 140 and the left-hand curve K = 114. Prof. Warner points out that for the 65 machines covered by the

chart, equation (59), which is as follows: $V = 127 \left(\frac{P}{S}\right)^{.39}$,

gives the speed with an error of less than 10 per cent. except for 10 landplanes and four seaplanes (the seaplanes are

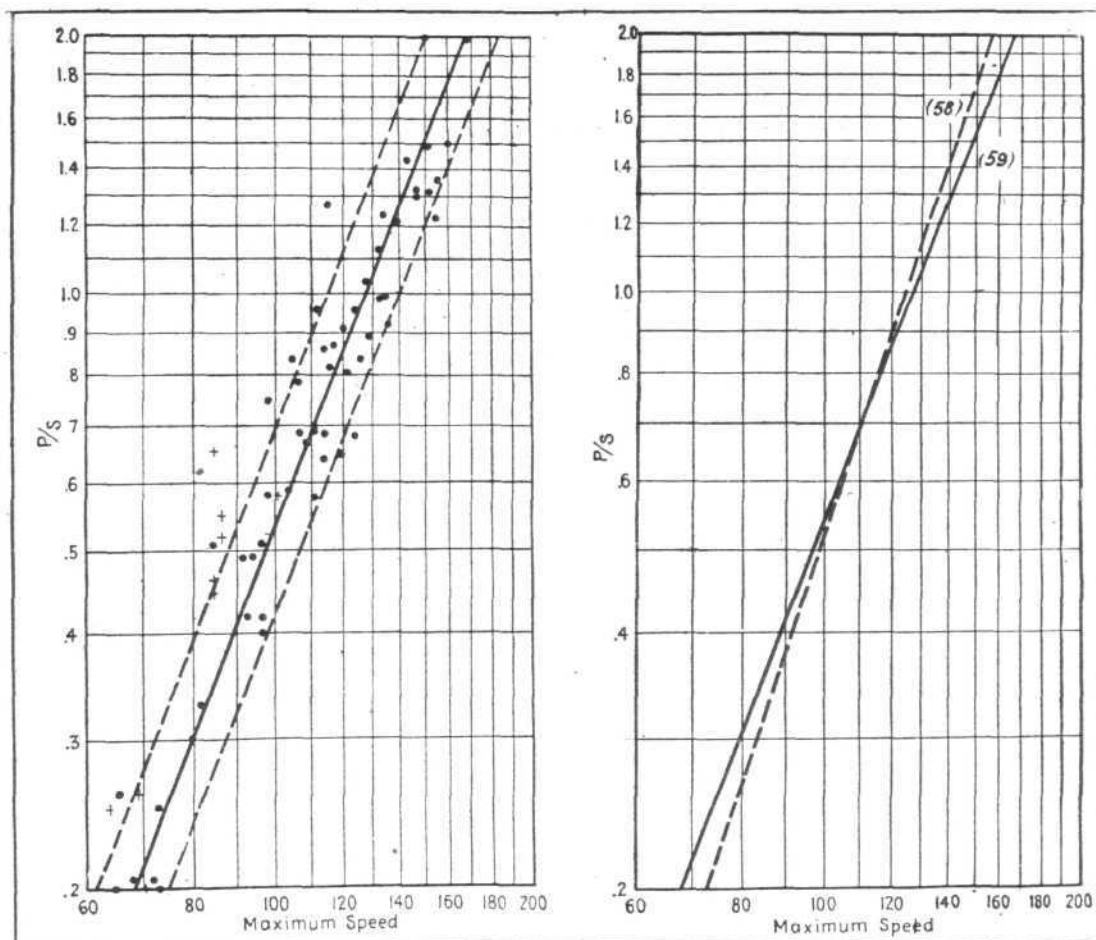
marked by crosses), and the average error for all the machines is but 6.2 per cent.

By way of comparison between the results given by the two formulæ, Prof. Warner gives Fig. 189 (the right-hand chart) from which it is seen that, as was to be expected, the use of an exponent of .39 leads to higher estimated speeds for machines with high ratio of P/S (i.e., "wing power"), and a lower speed for low-power machines. As his reason for this change in exponent (i.e., from 1/3 to .39) he states that, as a matter of observation, the high-speed aeroplanes are generally those on which parasite drag has been most carefully reduced. This does not quite seem to tally with British machines, and last week we suggested that the coefficient K in the new suggested B.H.P./Span² formula might be progressively reduced so as to prevent ruling out high-power machines. The same object could be achieved by altering the exponent as

there is one suggested by Walter Diehl in American N.A.C.A. Report No. 173, and quoted by Prof. Warner in his book referred to above. This reads as follows:

$$V_{\max.} = K_1 V_{\min.} \frac{\sqrt[3]{\eta}}{\sqrt[3]{V_{\min.} W/P}}$$

where K_1 has an average value of 20, while $\sqrt[3]{\eta}$ ranges from 0.88 to 0.94. Warner states that even if the propeller efficiency be lumped in with K and the product of K_1 and $\sqrt[3]{\eta}$ be taken constant at 18, the probable error, as judged from 15 cases, is less than 3 per cent. A few tests on British machines seem to indicate that we should have to increase the product of K_1 and $\sqrt[3]{\eta}$ to 20 or even more, to get good agreement.



SIMPLE FORMULÆ FOR ESTIMATING TOP SPEED: The left-hand chart shows Fig. 188 from Warner's book, the full line corresponding to the formula $V = 127 \left(\frac{P}{S}\right)^{0.39}$. The dotted curves correspond to the same formula, but that on the left has $K = 114$, and that on the right has $K = 140$. The chart on the right shows (full line) an exponent of 0.39, while the dotted curve represents an exponent of 0.333. The latter chart is Fig. 189 from Warner's book.

done by Professor Warner, but in the opposite direction, i.e., choosing .3 for example.

A comparison with British machines suggests that Prof. Warner's formula for speed based on "wing power" would need to use $K = 140$ to bring the estimated speeds up to those actually attained by most British machines.

In his original article Mr. Walker objected to the use of "wing power" as a basis because it might tend towards encouraging large chord and poor aspect ratio. It would seem possible, however, to combine the span² and the "wing power" formulæ by using B.H.P./aspect ratio, defining the latter as Span²/area. This, however, would discourage area, and it might be better to include area by using as a basis B.H.P./area \times Span². The plain cube root would not apply in either of these two cases, but some exponent smaller than .333 would have to be used. To us it seems essential that area should be included in such a way as to encourage both area and span, but the latter more than the former.

While it is, obviously, impossible in the space which we can devote to speed formulæ to discuss all possible forms,

The use of Diehl's formula for handicapping, even the simplified form, would, furthermore, have the disadvantage that it would necessitate weighing the machines to get the power loading and, what is an even greater objection, to determine accurately the low speed. Provided this were practicable, however, probably very good agreement might be obtained. It would, at any rate, seem logical to take into consideration the power loading and the minimum speed.

Doubtless many of our readers will have their own views on the subject of formulæ suitable for handicapping purposes, and we shall be glad to hear of new suggestions and to receive criticisms of those already made. Only in that way will it be possible fully to discuss the subject. It is important that the formula to be used this year should be chosen as soon as possible, and, as pointed out by Mr. Walker in his article, once it has been decided upon, it should not be subject to sudden and frequent changes. At least one clear year should be given before an important change in formula is made, so that constructors who wished to produce machines specially for the formula might have time for doing so.

And, finally, it is of the utmost importance that whatever formula is chosen should be rational and should tend to encourage features of design known to be good.

One machine appears to defy any formula that can be devised—the de Havilland "Tiger Moth." With a B.H.P. of 130, a wing span of 22.6 ft. (i.e., $\text{span}^2 = 506$) and a wing area of 76.5 sq. ft., this amazing little monoplane seems to be something quite out of the ordinary. Using the span^2 formula suggested for this year,

$$V_{\max.} = 260 \times \sqrt[3]{\frac{130}{506}} = 165.2 \text{ m.p.h.}$$

On the "wing power" formula

$$V_{\max.} = 140 \sqrt[3]{\frac{1.7}{76.5}} = 154.8 \text{ m.p.h.}$$

We do not know what is the minimum speed of the "Tiger Moth," but if it is assumed that this is 60 m.p.h. the maximum speed, according to Diehl's simplified formula, would be

$$V_{\max.} = \frac{20 \times 60}{\sqrt[3]{60 \times 6.96}} = 161 \text{ m.p.h.,}$$

assuming a loaded weight of 905 lbs. and a power loading of 6.96 lb./h.p.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

ANNUAL GENERAL MEETING

THE Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held at 3, Clifford Street, London, W.1, on Wednesday, March 28, 1928, at 6 p.m.

Notices of Motion, signed by at least five Members, must be received not less than 21 days before the Meeting.

Election of Committee.—In accordance with the Rules, the Committee shall consist of 18 members. Members are elected to serve for two years, half the Committee retiring annually.

The retiring Members of the Committee are :—

Air Vice-Marshal Sir W. S. Brancker, K.C.B., A.F.C.; Sir Alan J. Cobham, K.B.E., A.F.C.; Lord Edward A. Grosvenor; E. J. B. How; Colonel F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Colonel J. T. C. Moore-Brabazon, M.C., M.P.; Lieut.-Col. M. O'Gorman, C.B.; Major H. A. Petre, D.S.O., M.C.; Brig.-General Lord Thomson, P.C., C.B.E., D.S.O.

Retiring members are eligible for re-election.

A MEETING of the Committee of the Royal Aero Club was held at 3, Clifford Street, London, W.1, on January 11, 1928, presided over by Lord Thomson, Chairman of the Club.

Election of Members.—The following Members were elected :—

Ralph John Dickinson.
Roy Hardy Dobson.
Capt. John Gordon Hopcraft, M.C.
Douglas Loughlin.
Harold Henry Marriott.
Arthur Johnstone Richardson.
Charles Thomas Edward Smith.
Flight-Lieut. Arthur John Styran (R.A.F.R.O.).
Major Richard Raymond Willis, V.C.

The following Aviators' Certificates were granted :—

8202 Harold Solomon, London Aeroplane Club.
8203 Frank James Raymond Heath, Lancashire Aero Club.
8204 William Frank Davison, Lancashire Aero Club.
8205 Harold Birchall, Norfolk and Norwich Aero Club.
8206 Richard Goodhart Whalley, Henderson Flying School.

F.A.I. Conference, Paris.—A Report of the Conference of the F.A.I. held in Paris, on January 5, was received.

A vote of thanks was passed to Lord Thomson and Lieut.-Col. M. O'Gorman for representing the Club at this Conference.

The following decisions of the F.A.I. were reported :—

F.A.I. Gold Medal.—The F.A.I. Medal for 1927 was unanimously awarded to Colonel Charles Lindbergh.

Gordon Bennett Balloon Race, 1928.—The Race will be held at Detroit on June 30, 1928.

Brussels Conference, F.A.I.—The Annual Conference of the F.A.I. was fixed for Brussels on June 26-29, 1928.

World's Records for Light Aeroplanes (Seaplanes).—The following weights were introduced for seaplanes :—

- 1st Category.—Two-seater seaplanes—Weight empty, not more than 500 kilos.
- 2nd Category.—Single-seater seaplanes—Weight empty, not more than 250 kilos.
- 3rd Category.—Single-seater seaplanes—Weight empty, from above 250 kilos to 437½ kilos.

In each of these categories the following records, without replenishments in flight may be established :—

1. Distance, returning to the point of departure without alighting.
2. Distance in a straight line without alighting.
3. Speed over a closed circuit of 100 km.
4. Height.

Weight empty means the total weight of the machine in flying order. The following weights are not included : Fuel (petrol and oil), crew, instruments for controlling the record, required by the F.A.I. and oxygen apparatus, if any.

The weight of water in the radiators shall count in the weight empty. In the two-seater category, the weight of the crew must be at least 150 kilos. or made up to this weight by ballast. The ballast must be sealed.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

London-Cannes Air Service

THE French Air Union announce that an air-service between London and Cannes will be opened on March 1.

Air Service Over French Alps

AN experimental extension of the Lyons-Geneva air service is to be carried out. The route will be between the Geneva-Cointrin and Le Fayet-Passy aerodromes, and will lie among the French Alps. The trial flights will be made by the well-known "mountain" pilot, Thoret.

"Who's Loster Gloster" Magazine?

WE learn from the Gloster Aircraft Co., Ltd., of Cheltenham, that a number of copies of the *Gloster Magazine* have gone astray during the Christmas postal rush. If those, therefore, who have not received their copies (or who have only received the wrappers thereof) will communicate with the Gloster Co., another copy will be sent to them.

Royal Air Force Memorial Fund

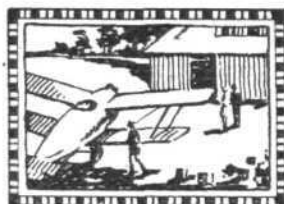
THE usual meeting of the Grants Sub-Committee was held on January 12. Lieut.-Comdr. H. E. Perrin was in the Chair, and the other Members of the Committee present were :—Mrs. L. M. K. Pratt-Barlow, O.B.E. Sqdn. Leader Douglas Iron, O.B.E. The Committee considered in all 17 cases, and made grants to the amount of £254 2s. 6d.

The next meeting was fixed for January 26, at 2.30 p.m.

New Chief Superintendent for Royal Aircraft Establishment

THE Air Ministry announces :—Mr. A. H. Hall, C.B.E., M.I.C.E., M.I.M.E., Superintendent of Airship Production, has been appointed Chief Superintendent of the Royal Aircraft Establishment, Farnborough, as from April 1 next, in succession to Mr. W. Sydney Smith, C.B., O.B.E., who is on that date retiring from the public service.

PRIVATE



FLYING

A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

CAPTAIN W. N. LANCASTER'S FINE FLIGHT

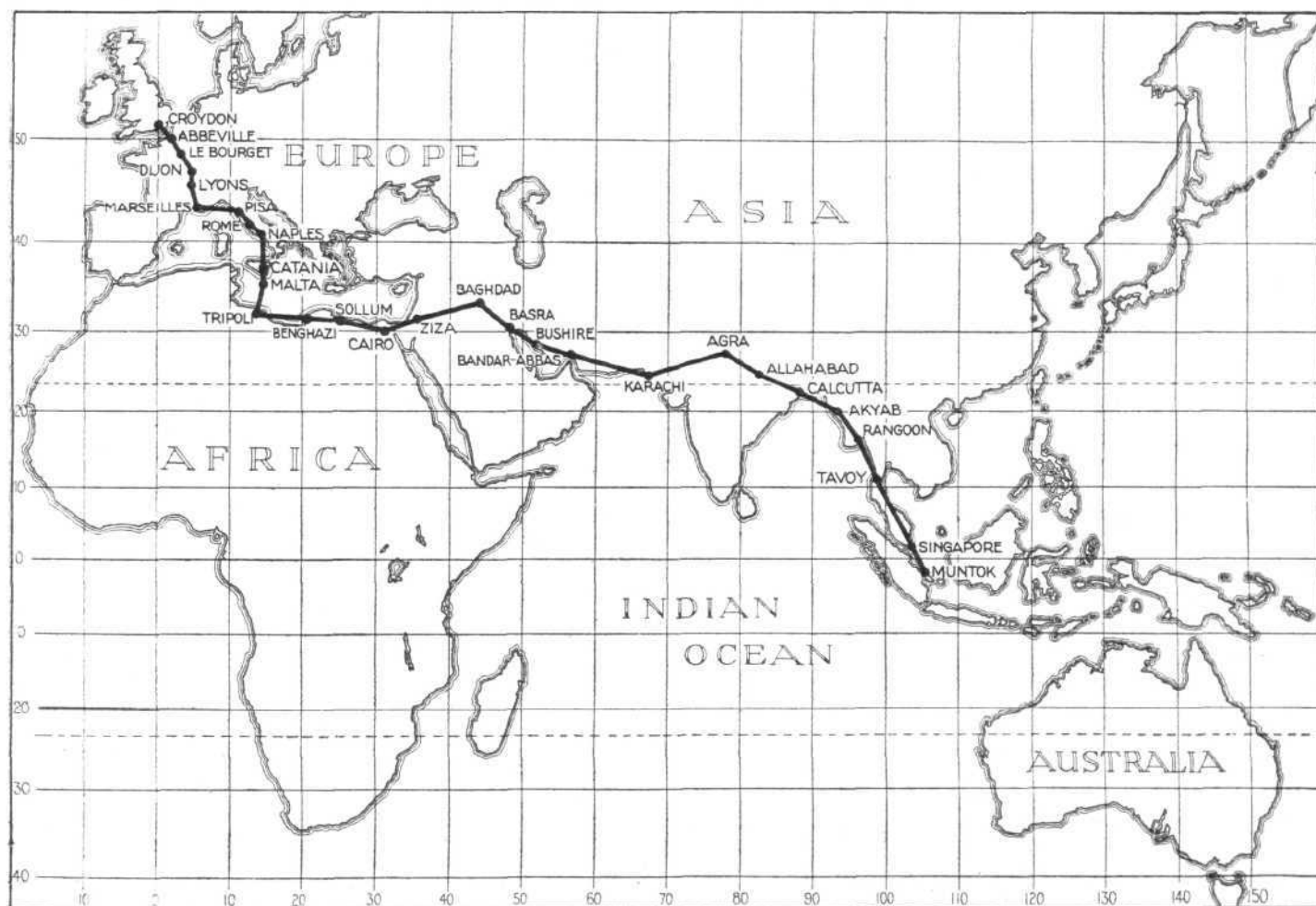
THE distinction of being the first to fly the 14,000 miles from England to Australia in a light aeroplane has temporarily eluded Capt. W. N. Lancaster and his passenger, Mrs. Keith Miller. Their crash at Muntok, in the Dutch East Indies, is not now considered so serious as previously understood, but it seems likely that the flight will not be continued for many weeks yet. It is gathered that the fuselage of the Avro "Avian" is intact and the machine repairable. The crash occurred through a sudden stoppage in the petrol system as the "Avian" was ascending from Muntok, and the circumstances apparently made it necessary to sideslip from the altitude of 150 ft., but a crash ensued. Mrs. Keith Miller had her nose broken and Capt. Lancaster suffered from slight concussion and cuts. They both returned to Singapore on January 12 and had their injuries attended to at the hospital. It is at Singapore that the "Red Rose" will probably be repaired. Whether spare parts will have to be sent from England is not yet certain. It should be remembered that the flight is purely a private venture of Capt. Lancaster's, and its resumption depends entirely upon his decision. Certain delay should be avoidable as an inspection of the machine by the insurance parties is possible on the spot.

This fine flight began from Croydon on October 14, witnessed by Lady Ryrrie, wife of the High Commissioner, and Col. Ivo

Edwards, of the Air Ministry. The first stage took them to Abbeville, just inside the French coast, and the second to Le Bourget. A fog delayed the next departure for two hours, but Dijon was gained early in the afternoon (October 16). An hour later the journey was resumed to Lyons. With regularity the flight then proceeded through Marseilles, Pisa (October 19), Rome and Naples (October 20), Catania, in Sicily (October 21), and Malta (October 22).

The sea stage from Malta to Tripoli, on the North African coast, was made on October 24, in three hours against a strong wind and in very low clouds. Writing from Tripoli, the pilot spoke in eulogizing terms of his machine and "Cirrus" 30-80 h.p. engine, and of the hospitality and help extended to him by the Italian Air Force.

On the next lap they flew through a sandstorm and against a 45 m.p.h. wind over hostile country, finally making a perfect landing at Benghazi, where a night was spent in the Italian Air Force base. The Italians were enthusiastic over the performance of the light aeroplane. Sandstorms again marked their progress from Benghazi to Sollum, and then the weather was good up to Cairo. They had an escort of R.A.F. Vicker's "Vernons" for the four days' flight from Cairo to Baghdad. The first stop on this lap was at Ziza, just beyond the Dead Sea, but on resuming, bad weather drove them



CAPT. LANCASTER'S AVRO "AVIAN" FLIGHT FROM ENGLAND TO MUNTOK: This map shows at a glance how closely Capt. W. N. Lancaster and his passenger, Mrs. Keith Miller, came to accomplishing their plan to fly from England to Australia, a distance of approximately 14,000 miles. The intended "landfall" in Australia was Port Darwin on the North coast. The thick line traces the route taken and shows the principal stopping places.

down at the Rutba Desert post, midway between the Mediterranean and Baghdad. The R.A.F. expressed appreciation of this flight, and also the journey from Rutba to Baghdad.

It was thought in Baghdad that no machine could live in the air on the day they reached that city (November 3). It was pouring heavily with rain. The next ascent was made with a full load, when the R.A.F. "Vernons" and D.H.9a's were unable to leave the ground owing to the flooded state of Hinaidi. The pilot had marked on his map Wasiriya, as an emergency landing ground, and, although it was a little off his direct route to Basra, he flew towards it, as he feared arriving at Sheibah, the Basra aerodrome, after dark.

An inspection of this ground, however, revealed soft mud, which put it out of the question for the purpose, so the "Red Rose" was flown down the railway line to Ur Junction, a place about 100 miles from Basra. Here was provided the only good landing ground for miles, for rain had fallen in the district for the whole week. It was necessary for Capt. Lancaster and Mrs. Keith Miller to take turns at guarding the "Avian," as the Arabs there were mostly of the lower type and all thieves. They did manage to steal the maps for the Basra-Karachi line, and these had to be replaced on reaching Basra. In his letter from Ur Junction on November 9 the pilot mentioned that he was nursing his engine until reaching Rangoon.

Two nights were spent at Ur Junction owing to magneto trouble, and on arriving at Basra on November 10, escorted on the way by R.A.F. machines, a delay of ten days followed whilst a new magneto was sent from England. Incidentally, they were also placed in quarantine there for one week owing to an outbreak of cholera in the district.

On November 26 Bushire was reached, and to make up for time lost they covered 1,500 miles in three days. Karachi was gained after flying for nine hours against strong head winds. The landing was made at night. This was the half-way stage of the flight, and it had been done in 92 flying hours. The machine was still in perfect condition. Travelling across Northern India they went from Karachi to Agra, Allahabad, and Calcutta, where they landed on December 19, having flown 8,500 miles since leaving England and having now beaten the 8,000 miles flight of Lieut. R. R. Bentley from England to Cape Town.

Akyab was the next stage, and when leaving there on December 22 they flew for 300 miles and were forced to making a landing in a rice field just short of their intended destination, Rangoon. The actual entry into Rangoon was made by road. There came next one of the most startling

adventures of the whole flight; one, perhaps, without precedent in air adventures. They were flying towards Tavoy on January 2 when a snake suddenly appeared in the cockpit. Capt. Lancaster tried in vain to stamp upon it and kill it, but the reptile only wriggled out of his way and entered the cockpit of Mrs. Keith Miller, who immediately attacked it vigorously with the second joy-stick and killed it after a struggle. The intruder was thought to have availed itself of a speedy journey across country by secreting itself in the machine when it stood upon the Rangoon racecourse. After Tavoy came Singapore, and then Muntok, where the fine flight met with its temporary conclusion.

Their flight from England to Muntok, a distance of over 9,000 miles, had taken approximately three months. Of this time there had been about one month's delay. In spite of the premature finish the aviators had put up a record for the longest distance covered by a light aeroplane, and they have yet the best possibility of being the first to reach Australia in a light plane. A danger to them in the attempt for this honour is probably Mr. Bert Hinkler, who proposes shortly to do the full journey in a fortnight. But his passenger will be petrol. Capt. Lancaster made it clear, however, when leaving England, that his intention was not to create a spectacular feat but rather to test the endurance of a light aeroplane.

The approximate distances covered are as follows:—Croydon-Abbeville (125 miles); Le Bourget (185); Dijon (160); Lyons (110); Marseilles (170); Pisa (250); Rome (165); Naples (110); Catania (240); Malta (120); Tripoli (225); Benghazi (425); Sollum (300); Cairo (420); Ziza (285); Baghdad (550); Basra (295); Bushire (205); Bander Abbas (345); Karachi (730); Agra (700); Allahabad (270); Calcutta (450); Akyab (400); Rangoon (320); Tavoy (240); Singapore (960); Muntok (225).

Mrs. Keith Miller is the wife of an Australian journalist. Capt. W. N. Lancaster is a member of the R.A.F. Reserve. He was educated at Stafford College and went to Australia in 1914. During the war he enlisted in the Australian Light Horse and was sent to the Middle East. In 1917 he served in France in a field company of the Australian Royal Engineers, and then joined the R.A.F. He also served in France and England with the Australian Air Force and the Royal Air Force. At the end of the war he was placed on the unemployed list, and studied at the London University. In 1920 he returned to the active list and went to India. He is an amateur steeplechase rider, and won the amateur broncho-riding competition at the Wembley Rodeo of 1924.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.
Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Lieut.-Col. C. Fleming, Filton Aerodrome, Patchway.
Hampshire Aero Club, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.
Lancashire Aero Club, Woodford, Lancs. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.
Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.
Newcastle-upon-Tyne Aero Club, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.

LONDON AEROPLANE CLUB

REPORT for week ending January 15.—Flying time, 12 hrs. Dual instruction, 4 hrs. 30 mins.; solo flying, 7 hrs.; passenger flights, 30 mins.

Dual Instruction.—With Capt. F. G. M. Sparks: J. Bickley, A. C. Wiggall, Miss Fletcher, G. E. Clair, H. B. Micklemore, L. Rowson, G. Peckham, W. Cole.

Solo Flying.—R. Sanders Clark, G. C. Bonner, C. E. Murrell, A. R. Ogston, B. B. Tucker, Sqdn.-Ldr. M. E. A. Wright, O. J. Tapper, L. C. Davey, J. H. Saffery, H. B. Micklemore.

Passenger Flights.—With E. E. Stammers: Miss Johnson and G. Joye. Flying was only possible on Saturday and Sunday last.

The club has now taken delivery of D.H. "Moth" G-EBMP to replace G-EBLI, which was crashed in October last.

BRISTOL & WESSEX AEROPLANE CLUB

REPORT week ending January 14.—Total flying time, 12 hrs. 30 mins.; instruction, 6 hrs. 45 mins.; soloists, 5 hrs. 15 mins.; passengers, 30 mins.

Instruction (with Mr. E. B. W. Bartlett): Miss H. Pitman, Messrs. A. E. Arnold, P. H. H. Bryan, A. H. Downes-Shaw, T. H. Clarke, J. H. Roberts, R. A. Hall, H. A. Tiarks, H. F. Tiarks.

"A" Pilots: Messrs. A. H. Downes-Shaw, R. A. Hall, E. Hopper, J. E. Tratman.

Soloists under instruction: Mr. J. H. Roberts.

Passenger with Mr. Tratman: Mr. Machon.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending Saturday, January 14.—Total flying time, 11 hrs. 40 mins. Instruction, 5 hrs. 10 mins.; solo, 5 hrs. 40 mins.; test flights, 40 mins.

Norfolk and Norwich Aero Club, Mousehold, Norwich. Secretary, H. O. Bennett, 5, Opie Street, Norwich.

Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.

The Scottish Flying Club, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.

Suffolk Aeroplane Club, Ipswich. Secretary, Courtney N. Prentice, "Hazel Dell," Stowmarket, Suffolk.

Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, Lt.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

The following members had instruction with Flight-Lieut. Thomson:—Dr. Morrison, Lieut. Mandeville, Capt. Kirby, Messrs. Baynes, Storey, Courtney, Dick, Lowe-Wylde, Berney, Musslewhite, Cripps, Watson-Taylor and Fawkes.

The soloists were (licensed) F./O. Overbury, Messrs. Wyllie, Fagan, Parker, Falconer, Bowen, Cooper and Cripps; (unlicensed), Capt. Kirby.

The only news to report this week is the holding of the annual dinner on Friday evening, which is dealt with elsewhere in this issue.

LANCASHIRE AERO CLUB

REPORT for week ending January 14.—Flying time, 5 hrs. 55 mins. Instruction, 1 hr. 50 mins.; solo flights, 2 hrs. 10 mins.; passenger, 1 hr. 45 mins.; tests, 10 mins.

Instruction.—With Mr. Brown, Messrs. Benson and Goss. With Mr. Cantrill: Messrs. Harber and Rowley.

Soloists (under instruction), Messrs. Browning and Caldecot.

Pilots: Messrs. Meads and Rowley.

Passengers.—With Mr. Lacayo: Messrs. Rowley and Tranton. With Mr. Brown: Miss Ruddy, Messrs. A. and A. E. Baerlin. With Mr. Cantrill: Mr. Steele. With Mr. Goodfellow: Mr. Mills.

Real Mancunian weather still prevails and our ground staff is kept busy scraping the fungoid growths off our unserviceable aircraft. Even OK has developed some minor ailment of the engine, and only LV (which goes one better in veteraniness, or whatever you call it, than the famous IW) continues its solitary way like "the cat that walked by itself." In view of which it is perhaps as well that we have not been embarrassed by any invitation to send machines over to Hooton on the 28th. One gathers unofficially but upon good authority that "the Liverpool organisation for the advancement of the interests of Liverpool" is upon this date holding some sort of a flying meeting to inaugurate the birth of the Liverpool Flying Club. The many



members of this club who laboured mightily last autumn at Hooton and elsewhere and who risked their necks and ruined their bank balances to stimulate the air-mindedness of Liverpool, and to ensure that the new club should be formed, will rejoice that their efforts have borne fruit. We wish the prospective club the happiest of omens at its birth, freedom from teething troubles, and an ample supply of prosperous and generous god-parents.

MIDLAND AERO CLUB LIMITED

FLYING report for week ending January 7.—Total flying time, 3 hrs. 5 mins. Dual instruction (with Mr. McDonough): Messrs. R. Bednell and A. Fowler. Solo: Messrs. R. Bednell, V. de Satge, S. H. Smith and E. J. Brighton.

Owing to heavy rain and gale, one day only was fit for flying. FLYING report for week ending January 14.—Total flying time, 6 hrs. 6 mins. Dual instruction (with Mr. McDonough): Messrs. E. Wynn and E. Lane. Solo: Messrs. E. J. Brighton, H. J. Willis, W. Swann, R. Bednell, R. Cazalet, S. H. Smith.

Owing to heavy rain and high winds only one day was fit for flying.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending January 15.—Total for week, 5 hrs. 40 mins. Instruction, 3 hrs. 5 mins. Test, 10 mins. "A" pilots, 2 hrs. 25 mins. Instruction: Miss Klyver, Messrs. Griffiths, D. Wilson, V. Heaton.

"A" Pilots: Miss Leathart, Dr. Dixon, Mr. H. H. Leech, Mr. W. Baxter Ellis, Mr. C. Thompson.

Passengers (with Mr. C. Thompson): Mrs. Heslop; (with Mr. Baxter Ellis), Mr. Temple, Mr. Walker.

A gale from Monday evening until Saturday morning prevented any flying taking place during the week, and on Saturday only one flight of 15 mins. in the morning was possible.

On Sunday Mr. Dudley Watt arrived in the Sopwith "Grasshopper" which has been purchased by Miss Leathart.

At 3.0 p.m. Mr. J. M. Campbell and the Secretary competed in a 200 yards footrace. This event attracted so much attention that seven entries have been secured for a 100 yards race on Sunday next, the 22nd, at 3.30.

NORFOLK & NORWICH AERO CLUB

REPORT for week ending January 15.—Total flying time, 6 hrs. 30 mins. Instruction (with Capt. Lines): Messrs. N. Brett, R. Potter, D. Woolfe, G. W. Barker, G. F. Surtees, H. Mack.

Soloists: Messrs. W. A. Ramsey, W. P. Cubitt, H. Pank, F. Gough.

Passengers: Messrs. H. Varden-Smith, L. J. Ward, L. Ottaway.

NOTTINGHAM AERO CLUB

REPORT for week ending January 13, 1928. Total flying time, 11 hrs. 20 mins. Dual, 5 hrs. 25 mins. Solo (A), 30 mins. Solo (under instruction), 3 hrs. 30 mins. Test, 15 mins. Passenger, 1 hr. 40 mins.

HAMPSHIRE AEROPLANE CLUB'S ANNUAL DINNER

THE Hampshire Aeroplane Club held its second annual dinner at Southampton on January 13. The Rev. E. Bruce Cornford, M.A., vice-president of the Club, presided over a gathering that numbered about a hundred and included many ladies. Responding to the toast, Mr. R. J. Parrott, chairman of the Club, gave a résumé of the Club's performance for the past year and mentioned that the present fleet of two D.H. "Moths" would have the addition of an Avro "Avian" shortly. He also announced that the instructor, Capt. Thomson, had resigned his position and was leaving at the end of the month. He was sure they could not have had a more conscientious and capable instructor, and his departure would be greatly felt. On behalf of the members, he took the opportunity of thanking him for all he had done and to wish him success in the future.

Sir Sefton Brancker then proposed the toast of "British Aviation." In his speech he stated that there was only one thing wrong with British aviation—there was not enough of it. After paying tribute to Southampton's part in aviation through the Supermarine Aviation Co. and the Hampshire Club, he said that the Club had a fine record but was still on the "dole"—that is, receiving the Government subsidy. That arrangement would come to an end on July 31 next, and after that payment would be by results. He thought the Club's air meeting last year was the most successful of the year. They had made an extraordinary good start and looked like being a "good proposition."

Our light aeroplane movement had proved the safety of aviation. The Government had not interfered with the

Dual with Mr. B. Martin: Messrs. Granger, Green, Calladine, Whitby, Hallam, Pilgrim, Cox, Walter and Blake.

Solo (A Licence): Mr. A. C. Ball.

Solo (under instruction): Messrs. Wilcox, Hallam, Blake, and Whitby.

Passengers (with Mr. B. Martin): Messrs. Granger, Kay, Stephenson and Wilcox, jr., with Mr. Ball, Mr. R. Ford.

News is scarce this week if one excepts the usual complaint about the weather, which has been kind to us on only three days. Blake is toeing the line for his "A" tests and when last seen was practising figure of eight turns with a radius of about 2 miles.

Three members sat for their oral examination last week and a petition is now going forward for the removal of the official observer.

Mr. Birchall of the Norwich Club paid us a visit (by road) just to see how a club really should be run and we are expecting great things from Norwich now.

The Club acknowledges with grateful thanks the gift of a complete first-aid outfit from Messrs. Boots Pure Drug Co., Ltd.

SUFFOLK AEROPLANE CLUB

REPORT for week ending January 15.—Flying time, 8 hrs. Instruction (with Mr. Lowdell): Miss Edwards, H. Billinton, R. Brown, F. Verney, T. Marriage. Instruction (with Mr. Prentice): F. Verney. Passengers (with Mr. Lowdell): Mrs. Howard, Miss Ambrose, Mrs. Anderson, B. F. Marriage. (With Mr. Prentice): Miss Rygate, Mr. Collison, Mr. Orris.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending January 14.—Flying time, 3 hrs. 15 mins. Instruction, 1 hr. 5 mins. Soloists, 2 hrs. 10 mins.

Instruction (with Capt. Beck): Messrs. H. Crowther, T. Brown, Critchley, Clayton, Bamford.

Soloists: Mr. Critchley.

"A" Pilots: Mr. I. Thomson.

Flying has been absolutely impossible the whole of the week owing to one continuous gale, which has only broken on Saturday afternoon by torrential downpour.

Mr. Critchley, one of our most recent members, obliged us with a "solo" on Sunday in spite of the wind. This is accounted for by the fact that Mr. Critchley although not having flown for nine years, has some two thousand hours' flying time to his credit.

This week we collected RF from Brough with various modifications, which are indeed a great improvement. The machine is now fitted with exhaust rings; the tank has gone up into the centre section; the ailerons have been shortened; and adjustable rudder bar fitted. These details have done much to improve the general appearance of the machine.

clubs beyond insisting upon good instructors and engineers. He mentioned the interesting fact that the only air visitors to Venice during the last Schneider Trophy Race were British, and four or five of them flew in light aeroplanes. Our aircraft industry was the whole source of strength behind the country, but it was hindered because it could not pay its way and depended upon Government subsidies. There was, however, a gradual approach towards paying its way.

Brig.-Gen. Groves next spoke. He agreed with the Director of Civil Aviation that there was nothing wrong with British aviation except there was not enough of it. At present we had 20 commercial machines and 3,000 miles of air lines. Germany had 16,000 miles, and France 18,000 miles of lines. Last summer Germany averaged 37,000 miles a day, whereas our machines averaged daily 3,000 miles, and that included the Cairo-Basra service. On the question of safety, Gen. Groves mentioned that civil aviation in this country had not so much as scratched anyone for two years.

The Air League in Germany had a membership of 1,000,000. There were also 50 light aeroplane clubs in Germany, a large number of which had been presented with machines by the German Air League. He was sorry to say that the Air League of the British Empire only numbered 6,000. He meant to alter that. Among those present were: the Mayor of Southampton (Councillor Mrs. Foster Welch, J.P.); Mrs. Parrott; Mr. O. E. Simmonds, M.A.; Comdr. J. Bird, O.B.E.; Mr. A. V. Roe, O.B.E.; Mr. E. Rumble; Mr. R. V. Perfect; Dr. Butler, hon. medical officer; and Capt. Thomson.

AEOLUS OR THE FUTURE OF THE FLYING MACHINE*

THIS little book is one of a series entitled "Today and Tomorrow," and the conditions of the series force the author into the realm of prophecy, a location which he evidently enjoys. He states his belief that the future lies (a) with a form of autogyro for inland journeys between terminus and port, and (b) with very large metal multi-cylindrical flying-boats with fixed wings for trans-oceanic voyages, the same type also flying fearlessly over land. The reasons for allotting these specific roles to these two types are well and clearly argued. As for airships, it is well known that Maj. Stewart does not believe in the possibilities of airships. The reasons for which he gives in this book are not so logically convincing as the previous chain of arguments, because

they base too much on the notorious chapter of accidents to war-type airships, and disregard the mass of airship research work carried out in recent years in Great Britain. However, Maj. Stewart admits that it is only right to try airships out fully, and that, whether they succeed or fail, the money spent will not have been wasted—which is sound common sense.

Maj. Stewart also prophesies what the future of the war aeroplane will be. He may be right; but he puts his views rather fantastically, and he is always less convincing when he allows himself to become fantastic. In his early chapters, too, he wastes time in striving (sometimes successfully) after a string of smart epigrams. The serious section of the book is much the best.

F. A. DE V. R.

* By Major Oliver Stewart, author of "The Strategy and Tactics of Air Fighting". (Kegan Paul, Trench, Trubner & Co., Ltd. Price 2s. 6d.)

AIRISMS

FROM THE FOUR WINDS

New Zealand Airmen Still Missing

HOPE has been abandoned of the safety of the two New Zealand airmen, Capt. Hood and Lieut. Moncrieff (Capt. Knight, according to some reports received, did not start with the others), who attempted to fly from Sydney to Wellington, a sea flight of 1,450 miles, on January 10. Their Ryan monoplane was reported to have been seen off the New Zealand coast but investigation did not confirm this. Time signals, presumably from the machine, suggested a possible descent near the coast, whilst a landing at some remote spot inland is still thought probable. Warships have searched 24,000 square miles of ocean in vain and have now returned to port. A search inland is being continued. Opposition to this flight was first raised by the Australian Government owing to the type of machine used, but later an exception was made in this case.

African Survey Flight

THE second mishap to Sir Alan Cobham's "Singapore" flying-boat is explained more fully in a later report, which states that a gale of exceptional violence dragged the machine from its moorings, but fortunately it beached itself on the only strip of sand in the region. It proved necessary, however, for relays of R.A.F. men to hold the machine in position throughout the night, whilst wading waist-deep in the sea. Bad weather persisted the next day, and then it was decided to head into the gale, and with the engines full out and the aid of a tug this was accomplished. A rowing boat with a R.A.F. crew was pitched on to the "Singapore" as it rode to sea, and the men had to lie flat to avoid the propellers. Three were thrown overboard, but were able to swim back. Eventually the "Singapore" was drifted to the sheltered bay, and firmly secured. Only minor repairs were necessary.

Great Flying-Boat Cruise

THE four R.A.F. "Southampton" flying-boats which left England last October for Singapore and Australia flew from Colombo to Trincomalee, Ceylon, on January 12.

French South American Tour

CAPT. COSTES and Lieut. Le Brix are now flying from South America to New York. They reached Panama on January 13 from Guayaquil, Ecuador, and were greeted by Col. Lindbergh, who had flown from Colon for the purpose. Costes and Le Brix were the first two airmen to make the non-stop flight across the South Atlantic, and since then they have been touring South America. Earlier reports stated that on reaching New York they would attempt an Atlantic flight to Paris.

U.S.A. to Nicaragua Non-Stop Flight

MAJOR LOUIS BOURNE, U.S. Marine Corps, with another Marine officer and a sergeant, made the first non-stop flight from the United States to Nicaragua on January 14 in a Fokker monoplane. Starting from Washington on January 12 they flew to Miami, Florida, and stopped for one day to overhaul the three engines. Then at 5.31 a.m. on Saturday, they took off in a very thick fog and crossed the Caribbean Sea to Honduras, and then flew overland to Managua, landing finally on the aerodrome, where Col. Lindbergh came down a week before. The distance covered was 1,150 miles. Their machine will be used in Nicaragua for transporting troops, supplies and the wounded, together with another Fokker monoplane already in the country.

American Attempt on Duration Record

MR. CLARENCE CHAMBERLIN, who flew the Atlantic with Mr. Levine, failed on January 14 to beat the duration record by 30 mins. 7 secs. He was accompanied by Mr. Roger Williams and remained in the air over Long Island for 51 hrs. 52 mins. 24 secs., which was 40 mins. longer than his previous record in April last, when Mr. Bert Acosta was his companion. Since then the German airmen, Herr Risticz and Herr Edzard put up a record of 52 hrs. 23 mins. in a Junkers monoplane, which is still unbeaten. A petrol leak occurred during Mr. Chamberlin's latest attempt, as well as other defects. He expects to try again any moment.

Champions of the Air

LADY BAILEY has been awarded the honour of champion airwoman of the world in 1927 by the International League of Aviators. She is the holder of the altitude record for light aeroplanes of the two-seater class and President of the Suffolk Aeroplane Club. The claims of Miss Ruth Elder and Madame Lille Dillen were defeated as their flights over part of the Atlantic were undertaken with the assistance

of men pilots. Col. Charles Lindbergh was proclaimed the champion airman for 1927. Other airmen were made awards as representing their various countries:—Great Britain—Flight-Lieut. S. N. Webster, for winning the 1927 Schneider Trophy Race. France—Lieut. Costes, for his South Atlantic flight. Italy—The Marquis de Pinedo, for his South Atlantic flight and tour of the United States. Spain—Senor Llorente, for his flight to Spanish Guiana. Holland—Lieut. Koppen, for his flight to Batavia and return.

War in Iraq

R.A.F. PUNITIVE operations against the Wanabi raiders have begun. Using Ur of the Chaldees as their base, four squadrons were sent out under the command of Air Commodore Higgins. On reaching Artawaiyah, the home of the marauding Sheikh, Faisal ed Dowish, they found that the majority of the population had vanished, leaving only a few women and children. Later reports stated that the Sheikh had been captured by Ibn Saoud, King of Hedjaz; so if this is true it should make the Air Force expedition unnecessary.

America Adopts Slotted Wing

THE Navy Department has stated that all American Army and Navy aeroplanes will be equipped with the Handley-Page automatic slot device. The Government has obtained the rights for this from the English company.

Aerodrome in Rhodesia

AN aerodrome is to be constructed at Salisbury in Southern Rhodesia, and will be included in the standard route for annual flights by Royal Air Force detachments.

Chief of Danish Air Force Dead

THE death is announced of Col. J. P. Koch, Chief of the Danish Royal Air Force. He was a well-known explorer, and took part in several Greenland expeditions, which included the 1900 Amdrup expedition.

Italian Air Force Honours Afghan King

DURING the King of Afghanistan's visit to Rome on January 10, the Italian Air Force gave a brilliant aerial display in his honour. About fifty machines, comprising fighters and Caproni bombers, performed evolutions in massed formation at a very low altitude. The King and the Queen, who were escorted by the King and Queen of Italy and Signor Balbo, Under-Secretary for Air, afterwards inspected the Italian machines which were lined up at the Ciampino aerodrome.

Loening Prize for Students

GROVER LOENING, the well-known American aircraft designer, has established a prize fund of \$5,000 to be used as an annual award to winners of an inter-collegiate aviation contest, to be held each year under the auspices of the National Aeronautic Association. This contest will be open to all students of American Colleges who own aeroplanes.

Brussels-Belgian Congo Air Service.

ON January 14 M. Lippens, Belgian Minister of Railways and Communications, presided at the opening meeting of a Commission to consider the opening of an air line between Belgium and the Belgian Congo, which, it is hoped, would start in 1930.

Armstrong-Siddeleys in Canada.

THE *Times*' Ottawa correspondent says that Armstrong-Siddeley Motors, a subsidiary of Armstrong-Whitworth, which obtained a contract for eight fighting aeroplanes ordered for the Canadian Air Force, has entered into arrangements for the manufacture of parts of the aircraft engines by the West Plant Ottawa Car Manufacturing Company.

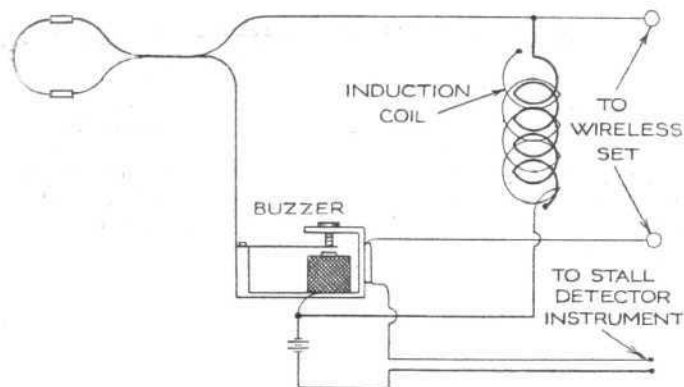
Twenty Years Ago

Extract from "The Auto" (Precursor of FLIGHT), Jan. 18, 1908:—
"Henry Farman's Record Flight.—An immense stride has been made in aeronautics by the winning of the Deutsch-Archdeacon Prize. . . . The Grand Prix d'Aviation of 50,000 francs offered by M. Deutsch de la Meurth and M. Ernest Archdeacon . . . to be awarded to the inventor of a flying machine who shall first accomplish a flight of one kilometre in a closed circuit without touching the ground, has been officially won (on Jan. 13, 1908) at Issy-les-Moulineaux by Mr. Henry Farman, in his first and single flight made at 10.15 (that morning). . . . The duration of the flight, according to the time officially taken by M. H. Kapferer, was 1 min. 28 secs., and the average elevation was between four and six metres from the ground."

A NEAT STALL WARNING DEVICE

IN view of the number of accidents which have as their initial cause the stalling of the aeroplane at a low height, it is small wonder that numerous inventions have been put forward for giving the pilot warning. In the Savage-Bramson anti-stall gear, the designers have gone a step farther in that not only does their device warn the pilot that he is about to stall, but the mechanism actually automatically carries out the correct operation, *i.e.*, it pushes the stick forward. There are, however, many pilots who fear that this movement

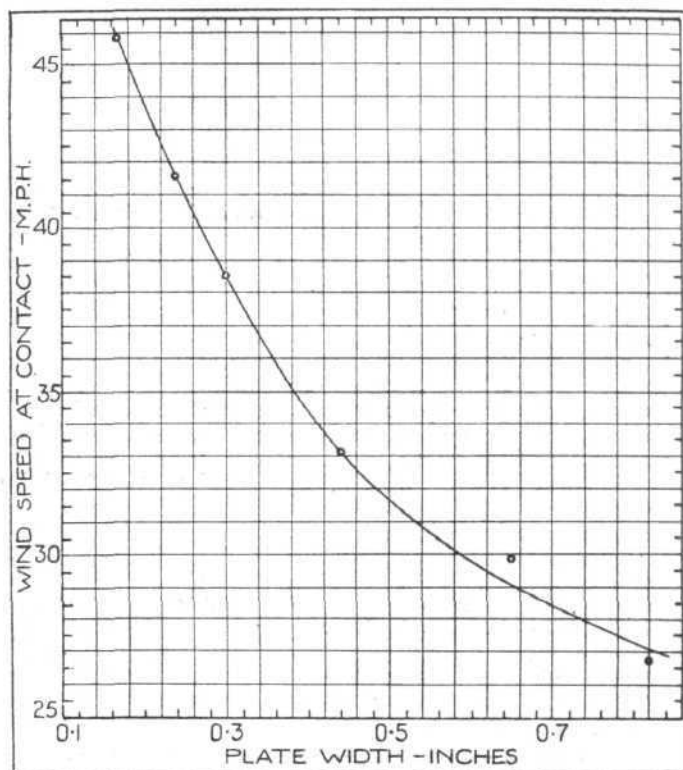
least warn the pilot that he is approaching the stalling condition should be a welcome addition to the equipment. Of



THE BARROS STALL WARNING DEVICE : Electrical wiring diagram of installation in a machine fitted with wireless.

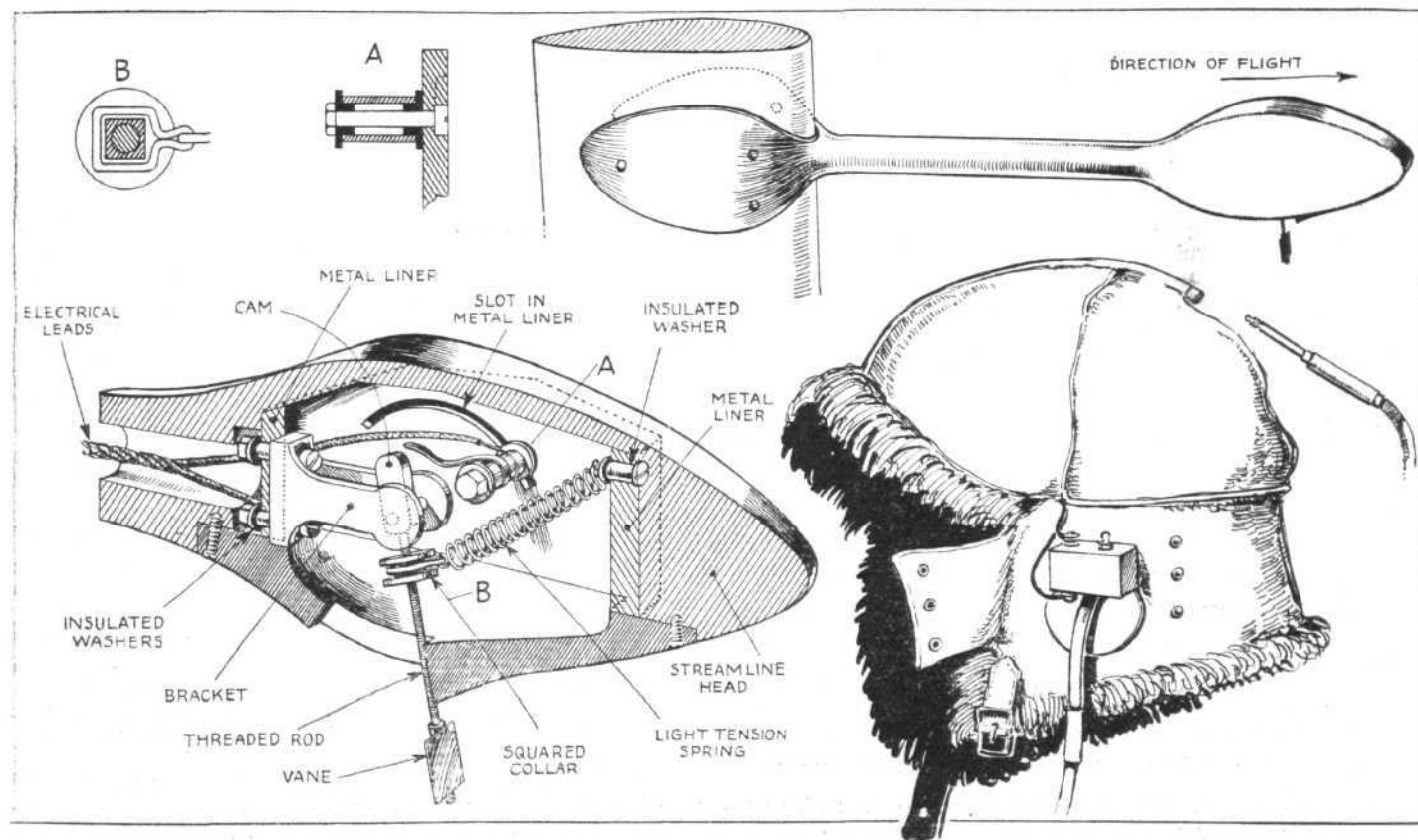
might lead to trouble by dipping the machine while close to the ground, and thus there is, perhaps, a tendency to dislike this device for that reason. The pilot can, of course, overcome the pull of the stall gear, but many hold that any interference with the delicate touch of the pilot at a critical moment may cause trouble.

Whatever may be one's opinions on that score, and a very good case can be made out for, as well as against, such a device, there is little doubt that some device which will at



THE BARROS STALL WARNING DEVICE : N.P.L. Calibration curve of the small wind vane.

devices of this nature, we have seen none simpler, neater, lighter, nor less likely to get out of order than that invented by Mr. J. Barros, and which is illustrated here. This device,



THE BARROS STALL WARNING DEVICE : Details are shown on the left. The device consists essentially of a small vane exposed to the wind, working against the tension of a spring. As the speed drops to near stalling speed, the vane moves forward and makes contact with a light leaf spring. At still lower speeds, or when the machine is stationary, the vane is right forward, and the contact is broken. At higher speeds the vane is back, the cam forward and again contact is broken. Closing the contact operates a buzzer in the pilot's helmet. The other sketches show the stall warning device mounted on a strut, and the helmet with buzzer and plug-in jack for connecting to battery and stall device.

incidentally, depends upon speed and not upon angle for its action. Objections might be raised to this, on the score that the stalling speed for a given machine varies according to whether the machine is light or fully loaded, while the stalling angle remains the same. While this is perfectly true, the difference in the two stalling speeds is not excessively great, and anyway, if the device is set to work at a speed just above the stalling speed fully loaded, the fact that it warns the pilot needlessly early (by some 5 or 6 m.p.h., perhaps) does not really greatly matter.

In the Barros Stall Warning device the essential elements are a wind vane and an electric buzzer, the former being so arranged that at a given speed it makes contact, closes an electric circuit, and causes the buzzer to operate. Two distinct forms of the device are available: one for machines not equipped with wireless, and the other for machines with radio on board. In the former case, use is made of the acoustic telephones by which pilot and passenger converse. In the latter, the buzzer is not placed in the helmet but on board the machine somewhere, and use is made of the normal wireless earphones, the presence of the buzzer not interfering in the slightest with the normal use of the radio. This object is attained by means of the induction coil shown in the electric wiring diagram.

The action of the device will readily be understood from an examination of the sketches. As the little vane moves back, the cam at its upper end moves forward, makes contact and rings the buzzer. A further increase in speed presses the vane back, the cam moves forward and breaks contact, and the buzzer stops. Thus the pilot goes through the stall warning in taking off. Thus he knows that by the time the buzzer has sounded and ceased again, he knows he is "up to flying speed" (provided he has been accelerating all the time, of course). During flight, if the buzzer sounds, the pilot knows he is approaching the stalling speed. After landing, when the speed has dropped below stalling speed,

the vane gradually moves forward, the cam moving back and breaking contact, so that the buzzer does not sound while the machine is standing still.

The adjustment of the vane can be very delicately carried out, partly by choosing the location of the small spindle carrying the leaf spring, this position being anywhere on the curved slot in the casing, and partly by turning the square collar thus changing not only the tension of the spiral spring but also the lever arm upon which it works.

In a machine not equipped with wireless, the buzzer is sewn into the earpiece of the pilot's helmet, the wires from the warning device running to some point in the machine, where also is carried the small dry battery which provides the current. Connection between buzzer and the rest of the circuit is made by a plug-in jack in the helmet, as shown by the sketch. Thus, in getting ready for a flight, all the pilot has to do is to plug in. In jumping out of his machine after landing, if he should forget to withdraw the plug, the pull on the wires will do this without causing any damage.

In a wireless-equipped machine a slightly more elaborate arrangement has to be adopted so as to enable the normal earphones to be used. The circuit then becomes as shown in the wiring diagram. Instead of connecting his earphones direct to the wireless set, the pilot connects to the instrument, which is already connected to the wireless. In other words, instead of connecting his earphones direct to the wireless, he connects via the stall warning circuit.

The whole outfit is extremely light (a few ounces only), and the only battery needed in the case of the simpler form is one of the small flashlight batteries which can be purchased for 6d. In a machine fitted with wireless the necessary battery is already available. The device seems worthy of close investigation, and we gather that Mr. Barros will gladly give demonstrations to anyone seriously interested. His address is: 66, Craven Park, Harlesden, London, N.W.10, and communications should be sent to him there.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

HANDICAP FORMULÆ

[2167] After reading the editorial remarks on "Handicapping Formulæ" in *FLIGHT* of January 12, I should appreciate the opportunity of making one or two comments.

You say that the value of the biplane span allowance has been "slightly modified" from what I suggested last September in the *AIRCRAFT ENGINEER*. It has, in fact, been more than doubled. This and your suggestion of a sort of sliding scale which would benefit faster machines, raises an interesting point which certainly wants thrashing out, but before coming to this it is important to realise why fast machines were ruled out last summer. This was merely because the formula then used assessed the speed of all machines too low. The race thus lasted a shorter time than the handicap speeds allowed for, and consequently the fast machines were not given time to catch the slow. This can be remedied by altering the value of "K"; but, of course it could be overdone, so that the race would take longer than allowed for, and slow machines would get overtaken, however good their speed value. This, however, is really a minor difficulty, and the best way of tackling it would be artificially to produce the situation which suddenly arose last summer, by someone working out the handicap times for a course of some length and seeing whether the time occupied by the race is about what might be expected.

As regards the sliding scale and the biplane allowance I, personally, think that any formula should be based on something fundamentally sound, irrespective of whether it brings past or existing machines into line or not. If a formula can be found which will really pick out the speed quality in relation to utility in other directions, a contest will display the merits of all kinds of machines in true perspective.

Suppose the formula used is a sound one, and, as your remarks suggest, that fast machines cannot so easily do their formula speeds as slow ones. This would show that something wants to be done about the fast machine to make them as efficient as the slow. People seem to be satisfied with the speed of high-powered fast aeroplanes, but without an absolute standard to judge by, how are we to know we are getting value for brake horse-power? If we could get a standard and we then made a sliding scale to put a premium on some bad quality, which happens to be

prevalent at one end of the scale, we should be handicapping on form, and it would be better to go the whole hog and not mix up this idea with a formula which is intended to select on technical merit.

I think there is no doubt that high-powered aircraft are more prone to have a poor speed value (on any rational formula) than low-powered machines, but the reason for this has been sticking out for years, and is no fault of aircraft designers. It is better to get rid of this defect than to give it a little extra handicap, and hush it up.

The formula which I described in September rests, as far as I know, on natural laws. It has been suggested that it would favour monoplanes. If this were so I should explain it by saying that monoplanes were somewhat faster than biplanes when designed for the same job, but I doubt if it is so.

There are in existence reasons for stating that (a) biplanes or (b) large horse-power can show results as good as any low-powered monoplane on this formula.

But no formula is without its drawbacks and perhaps the principal drawbacks to this one are that no credit is given for a useful large fuselage, or for a particularly low landing speed. Other formulæ could be suggested having "absolute" foundations. Prof. Melvill Jones has recently suggested that as a criterion of efficiency the overcoming of skin friction of fuselage and necessary surfaces plus the irreducible induced drag, should be credited as useful work done against the brake horse-power expended. This would form a quite different basis for handicapping. It would be of the "absolute" type, and would give credit for a large fuselage, but it would have great drawbacks from the handicapper's point of view, measuring the surface of the fuselage and weighing the machine after the race, etc.

The span allowance which I suggested for the other wing of a biplane was based on natural laws—one-eighth of the span of the other wing being for a normal gap/span ratio. The value of the constant "K" has no fundamental importance, although a race would be a fiasco if it were not fixed so as to give roughly the correct duration of the race.

In conclusion, I should like to sum up thus:—

1. A formula contest will not necessarily produce a good race, but will rather separate out contestants in order of merit.
2. A formula should make no attempt to correlate existing types, but should be based on natural laws.

3. Any attempt to allow for existing types and give them a chance is "handicapping on form," and is better left in the capable hands of Mr. Goodman Crouch.

4. A formula contest, while being of very great technical interest, would be of little use in the propaganda direction, and would not be interesting to the general public at present. It should be run on a simple, short course, so as to free the result from everything extraneous to the merits of the aircraft. There does not seem to be a suitable contest in existence to which to apply a formula unless the Aerial Derby handicap is revived.

There is much difference of opinion as to what is a good

basis on which to handicap. The idea underlying the one under discussion is simplicity of application combined with the following:—

The weight that can be safely taken off the ground with a given amount of thrust horse-power depends on span.

If aircraft having dimensions which are of use for dealing with loads are to be admitted, let us see how fast they can go, having regard to this dimension and their horse-power.

C. C. WALKER

Stag Lane Aerodrome.

January 16, 1928.

THE ROYAL AIR FORCE

London Gazette, January 10, 1928

General Duties Branch

Flying Officer S. F. Coleman is placed on retired list on account of ill-health; Dec. 31, 1927. Flight-Lieut. P. S. Jackson-Taylor is placed on retired list on account of ill-health and is granted permission to retain rank of Squadron-Leader; Jan. 4. Wing-Comdr. W. R. Read, M.C., D.F.C., A.F.C., is placed on half-pay list, scale B; Dec. 1, 1927. The following Flying Officers are transferred to Reserve, Class A (Jan. 1):—R. T. Halliwell, C. F. Roupell.

The following Flying Officers relinquish their short service commns. on account of ill-health:—H. E. Milton; Dec. 22, 1927. H. T. R. Cripps (Sec. Lieut., Queen's Bays Regt. R.A.R.O.); Dec. 29, 1927. J. N. Sparks, Lieut. R.N., Flying Officer R.A.F., relinquishes his temp. commn. on return to Naval duty; Jan. 5. *Gazette* dated Nov. 29, 1927, regarding Wing-Comdr. W. R. Read, M.C., D.F.C., A.F.C., is cancelled.

Accountant Branch

The following Pilot Officers on probation are confirmed in rank and promoted to rank of Flying Officer (Dec. 4, 1927):—W. S. Calder, J. E. Gregson. Flight-Lieut. A. D. Stonehouse is transferred to Reserve, Class C; Jan. 15.

Medical Branch

The following Flying Officers are promoted to rank of Flight-Lieut. (Jan. 6):—L. I. Hyder, J. Magner, M.B.

Flight-Lieut. F. K. Wilson, M.B., is transferred to Reserve, Class D.II; Jan. 2. Flight-Lieut. (Hon. Sqdn.-Ldr.) E. F. N. Currey relinquishes his temp. commn. on completion of service; Nov. 29, 1927. Flying Officer F. S. S. Whiter is promoted to rank of Flight-Lieut. (Dental) on promotion to Captain in the Army Dental Corps, with effect from Oct. 17, 1927, and with seny. of Oct. 7, 1927.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodores: B. C. H. Drew, C.M.G., C.B.E., to No. 23 Group H.Q., Grantham, for duty as Air Officer Commanding, 15.12.27. I. M. Bonham-Carter, C.B., O.B.E., to R.A.F. Depot, Uxbridge, 15.12.27.

Group Captain C. T. Maclean, D.S.O., M.C., to R.A.F. Depot, Uxbridge, 12.12.27.

Wing Commanders: B. L. Huskisson, D.S.C., to R.A.F. Depot, Uxbridge, 2.12.27. H. J. F. Huuter, M.C., to H.M.S. *Hermes*, for duty as Senior Air Force Officer, 3.1.28. H. R. Bustood, O.B.E., A.F.C., to No. 10 Sqdn., Upper Heyford, to command, 3.1.28. A. W. Tedder, to R.A.F. Depot, Uxbridge, pending commencement of next course at Imperial Defence College, 19.12.27. P. C. Maltby, D.S.O., A.F.C., to Air Ministry (Directorate of Training), for Air Staff duties, 19.12.27.

Squadron Leader H. G. Bowen, M.B.E., to No. 502 Ulster (B) Sqdn., Alder-grove, 1.2.28.

Flight Lieutenants: F. R. Wynne, M.B.E., to No. 32 Sqdn., Kenley, 13.1.28. A. A. C. Hyde, to No. 10 Sqdn., Upper Heyford, 5.1.28. A. H. Wann, to Air Ministry (Deputy Directorate of Manning), 6.1.28. J. Duminy, to R.A.F. Base, Calshot, 6.1.28. C. Findlay, D.F.C., to Electrical and Wireless School, Flowerdown, 30.12.27. H. C. Pyper, to H.Q., Cranwell, 10.1.28.

Flying Officers: J. S. Phillips, to R.A.F. Depot, Uxbridge, 18.12.27. G. A. R. Muschamp, to R.A.F. Station, Donibristle, 6.1.28. W. G. Wainwright Fahey, to R.A.F. (M.T.) Depot, Shrewsbury, 11.1.28. P. W. Lowe-Holmes, to No. 11 Sqdn., Netheravon, 21.12.27. A. R. Feather, to No. 2 Flying Training Sch., Digby, 3.1.28. G. L. Gandy, to No. 10 Sqdn., Upper Heyford, 5.1.28. F. W. H. Hall, to No. 26 Sqdn., Catterick, 7.1.28. R. H. Donkin, to Armament and Gunnery School, Eastchurch, 18.1.28.

ROYAL AIR FORCE—AIRCRAFT APPRENTICES

600 Vacancies for Educated Boys

THE Air Ministry announces:—Six hundred aircraft apprentices, between the ages of 15 and 17, are required by the Royal Air Force for entry into the Schools of Technical Training at Halton, Bucks, and at Flowerdown, near Winchester. They will be enlisted as the result of an Open competition and of a Limited competition held by the Civil Service Commissioners and the Air Ministry respectively. Successful candidates will be required to complete a period of 12 years' regular Air Force service from the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Full information regarding the aircraft apprentice scheme, which offers a good opportunity to well-educated boys of obtaining a three years' apprentice course of a high standard and of following an interesting technical career can be obtained on application to the Royal Air Force, Gwydyr House, Whitehall, London, S.W.1.

Nearly 5,000 aircraft apprentices have already completed their training at the technical schools of the Air Force, and the annual output is now in the neighbourhood of 1,000 fully trained aircraftmen.

The Open Competition, for which a fee of 5s. is charged, is open generally to boys within the age limits who forward completed application forms to the Secretary, Civil Service Commission, Burlington Gardens, London, W.1, not later than March 1. The sons of officers, warrant officers, and senior N.C.O.'s of the three services receive special consideration. In their case applications for nomination should be made to the Secretary, Air Ministry, Kingsway, London, W.C.2, not later than February 19.

Memorandum

The permission granted to Lieut. S. H. Hughes to retain rank is withdrawn on his enlistment in the Territorial Army; Nov. 17, 1927.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

A. Barron is granted a commn. in Class A as a Pilot Officer; Jan. 10. The following Pilot Officers are promoted to rank of Flying Officer; Jan. 5):—R. E. Hopper, J. F. X. McKenna, E. T. Scott, V. V. W. Vallance.

The following are confirmed in rank:—Flying Officer H. Shaw; Dec. 17, 1927. Pilot Officer R. Bance; Dec. 28, 1927.

The following Flying Officers are transferred from Class A to Class C:—J. F. Bythell; Nov. 2, 1927. M. H. Aten, D.F.C.; Nov. 26, 1927. C. C. K. Dagg, A.F.C.; Dec. 23, 1927. Wing-Comdr. H. R. Raikes, A.F.C., is transferred from Class B to Class C; Dec. 31, 1927.

AUXILIARY AIR FORCE

General Duties Branch

No. 600 City of London (Bombing) Squadron.—The following to be Pilot Officer:—A. B. Ferguson; Nov. 1, 1927.

No. 601 County of London (Bombing) Squadron.—The following Pilot Officer to be Flying Officer:—E. D. W. Reid, M.B.; Nov. 11, 1927. Flight-Lieut. H. B. Pett, M.C., resigns his commn.; Jan. 11.

No. 602 City of London (Bombing) Squadron.—Pilot Officer C. A. S. Parker is sec'd. for a period of one year under para. 62, Auxiliary Air Force Regulations; Dec. 8, 1927.

Pilot Officers: J. D. F. Bruce, to No. 99 Sqdn., Bircham Newton, 19.12.27. H. A. G. Comerford, to No. 16 Sqdn., Old Sarum, 19.12.27. W. G. H. Ewing, to No. 4 Sqdn., Farnborough, 19.12.27. G. A. G. Johnston, to No. 13 Sqdn., Andover, 19.12.27. R. J. P. Morris, to No. 99 Sqdn., Bircham Newton, 19.12.27. H. F. Suren to No. 7 Sqdn., Worthy Down, 14.1.28.

The undermentioned Pilot Officers are posted on appointment to permanent commns. from the R.A.F. Cadet College, Cranwell, with effect from 17.12.27:—E. A. Jones, to No. 26 Sqdn., Catterick. K. F. T. Pickles, to No. 100 Sqdn., Bicester. A. W. Hunt and W. H. Hutton, to R.A.F. Base, Calshot. E. R. White and E. J. Hill, to No. 58 Sqdn., Worthy Down. D. J. Waghorn, to No. 17 Sqdn., Upavon, N. A. Tait, and S. R. Groom, to No. 12 Sqdn., Andover. G. H. H. Procter, H. C. Parker, and J. E. MacCallum, to No. 2 Sqdn., Manston. J. S. Dewar and R. C. Field, to No. 13 Sqdn., Andover. C. E. St. J. Beamish and W. K. Beisiegel, to No. 25 Sqdn., Hawkinge. J. R. H. Pott and H. H. Leech, to No. 43 Sqdn., Tangmere. P. J. H. Halahan, to No. 3 Sqdn., Upavon, J. H. L. Dillon-Trenchard and H. A. Constantine, to No. 56 Sqdn., North Weald. S. L. Blunt, to No. 29 Sqdn., Duxford. N. B. Norris, to No. 4 Sqdn., S. Farnborough. P. J. B. Chalmers, to No. 111 Sqdn., Duxford. J. E. Allen, to No. 9 Sqdn., Manston. B. W. Figgins to R.A.F. Depot, Uxbridge, on appointment to a short service commn., 7.1.28.

Stores Branch

Flight Lieutenants: C. H. Pownall, to R.A.F. Station, Kenley, 19.1.28. E. C. Farman, to Fighting Area H.Q., Uxbridge, 10.1.28.

NAVAL APPOINTMENT

The following appointment was made by the Admiralty on January 16:—**Surgeon-Commander** A. G. Malcolm, M.B., to **President**, for course at R.A.F. Medical Officers' School of Instruction (Jan. 17).

All candidates for the Limited Competition must receive a nomination before they can attend this examination. These nominations must be received by the Air Ministry from the nominating authorities not later than May 1. If they are still at school, candidates should apply to their head master with a view to obtaining a nomination from the Local Education Authorities; if they have left school, application can be made either to the Local Education Authority or to the Advisory Committee for Juvenile Employment in their area. There is no fee for this examination, which is carried out at local centres in each area where boys are nominated.

The principal trades open to boys are metal (a new trade brought into existence by the introduction of the metal aeroplane, which involves training in both fitting and sheet-metal work), fitter (aero-engine), and wireless operator-mechanic. The apprentices are given a thorough training in their trade by highly qualified technical instructors, and their general education is also carried on simultaneously by a staff of graduate teachers.

During the training period the rate of pay is 7s. a week for the first two years and 10s. 6d. a week thereafter until the apprentice has both attained the age of 18 and been posted to a unit on completing his training. When he is posted to a unit for duty as an aircraftman, the rate of pay varies from 3s. 3d. to 5s. 6d. per day, according to the marks obtained in the passing-out examination. He also receives free board and lodging. In addition, a few apprentices of special promise proceed to the Royal Air Force Cadet College for training with a view to becoming commissioned officers.

For the remainder, opportunities arise later to volunteer to qualify in flying and become airman pilots. Selection to the number of about 60 is made annually from volunteers of all trades. From amongst airman-pilots a few are periodically selected for commissioned rank.

AIR POST STAMPS

By DOUGLAS ARMSTRONG.

(Editor of "The Stamp Collector")

Reduced Italian Air Postage

To meet the reduced fees for air-post letters lately introduced by the Italian Post Office, new values have been surcharged upon the stamps inscribed "Posta Aerea," originally introduced in 1925. On September 16 last the former 60 c. greenish grey appeared overprinted "Cent 50" and the 1 lira blue reduced to 80 centesimi.

French Aero Exhibition Stamps

THE two special air-post stamps provided by the French Post Office in connection with the Exhibition of Aerial Navigation held at Marseilles from June 25 to July 25 of last year may turn out to be a good investment for those visitors to the show who took the precaution to secure a pair at the temporary post office where they were on sale. Apparently the demand for these souvenirs was not so great as the authorities had anticipated, so that when the exhibition closed its doors there still remain on hand something like 30,000 copies of each value. By order of the Minister of Posts this remainder was returned to Paris for incineration, so that the numbers issued must have been comparatively small. They comprise the contemporary 2 francs red and blue-green and 5 fr. blue and buff overprinted with the device of an aeroplane and designation "Poste Aérienne," after the manner of the Tunisian air post stamps and in the latest edition of Gibbons' stamp catalogue they are quoted at 5s. the two.

Khartoum-Kisumu Air Post Covers

As the Kenya-Sudan air post service resumed operations for the second time, collectors will have another series of "first flight" covers to add to their collections, dated October 8, 1927. Some interesting souvenirs of the "flight that failed" exist in the form of letters intended for despatch by the air mail in March last upon which the original cachet "Air Mail Uganda-Sudan" is cancelled by the impression of a rubber stamp, in violet, reading "Owing to temporary failure Air Mail Service forwarded by normal route."

A. J. C. on Air Post Collecting

SIR ALAN COBBHAM is an enthusiast on the subject of air post collecting. Writing recently in a London newspaper he declared that "The vogue for collecting air mail souvenirs appears to me to be one of the most rational manifestations of the time-honoured cult of collecting. I can appreciate the motives that induce air post enthusiasts to pay big prices for letters carried upon famous flights by the great pioneers of aviation such as Farman, Grahame-White, Hawker, Alcock, Ross Smith and the rest. For myself I have transported quite a number of special air mails upon my various flights, and I prize very highly my small personal collection of souvenirs of these air adventures."

Lure of Air Post Collecting

THE charm of air post collecting casts its spell over all sorts and conditions of men, although its strongest appeal must be to those who are themselves associated with the progress and development of aerial transport. According to an American newspaper the great Henry Ford has become a convert to the cult of the winged missive as the result of a chance purchase of the Lindbergh commemoration stamp, and is now busily engaged in getting together an historical collection of air post souvenirs. As the Ford concern not only manufactures aeroplanes, but actually operates some of the U.S. air mail routes under Government contract, he should have unique opportunities for obtaining new items for his albums.

First Flight Covers

SOME of the covers carried on first flights over certain sections of the Trans-European air post system are scarcer than many collectors seem to appreciate. For instance, the total mail despatched from the Aspern Flying Field (Vienna) by the first through flight from that city to Riga (Latvia), on September 6, 1927, amounted to 52 pieces only!

Increasing attention is being paid by air post collectors to the acquisition of first flight covers on account of their historical interest, and there can be no gainsaying that in this respect they are more desirable in every way than those of later date. The initial flights over established air post routes constitute milestones along the path of aerial progress, and the letters carried on them are therefore historically important. A collection of these covers would illustrate in no uncertain manner the rise of the air post service and the growth of aerial navigation.

IMPORTS AND EXPORTS, 1926-1927

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

For 1910 and 1911 figures see FLIGHT for January 25, 1912.

For 1912 and 1913, see FLIGHT for January 17, 1914.

For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1926 being given in FLIGHT, January 20, 1927.

	Imports.		Exports.		Re-Exports.	
	1926.	1927.	1926.	1927.	1926.	1927
Jan. ..	£ 494	1,850	130,049	49,021	—	—
Feb. ..	2,089	679	40,416	63,080	6,341	—
Mar. ..	1,001	7,087	92,840	106,478	9,758	2,270
Apr. ..	536	822	160,832	71,190	5,051	785
May ..	342	1,258	118,539	82,708	—	640
June ..	24,866	1,249	66,111	149,907	150	162
July ..	16,033	1,798	39,047	104,167	—	750
Aug. ..	21,401	2,453	146,129	78,742	1,035	—
Sept. ..	3,172	2,045	55,674	61,946	—	59
Oct. ..	528	1,013	41,968	93,004	30	45
Nov. ..	1,069	3,014	118,648	111,202	250	—
Dec. ..	2,972	2,272	112,913	117,241	—	—
	74,503	25,540	1,123,166	1,088,686	22,615	4,711

R.A.E.S. AND INST.AE.E.

Official Notice

Schneider Trophy Winning Seaplane S.5.—On Thursday, January 26, at 6.30 p.m., at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, a lecture will be given on "The Designing of the Schneider Trophy Winning Seaplane S.5." The lecture will be given by Mr. R. J. Mitchell, Mr. P. A. Ralli, and Captain G. S. Wilkinson, jointly. Mr. R. J. Mitchell is, of course, the well-known designer and Director of the Supermarine Aviation Works and is the man chiefly responsible for the design of the S.5. Mr. P. A. Ralli was responsible for the design of the propeller. He is the propeller expert at the Fairey Aviation Co., Ltd. Captain G. S. Wilkinson, of D. Napier and Son, Ltd. was responsible for carrying on the work of Mr. Rowlledge on the Napier "Lion" engine, and it is largely due to the many improvements which he effected that the engine gave the remarkable results it did in the race. Only two machines finished and both were S.5's, and the winning machine put up the remarkable speed of 281.6 miles per hour over the triangular course under difficult conditions—a remarkable tribute to the work of the three men concerned with the designing of the S.5. The lecture will be fully illustrated, both by lantern slides and a cinematograph film. Admission is by ticket only, which may be obtained from the Secretary, 7, Albemarle Street, W.1., and early application is necessary as the number of tickets will be strictly limited.

J. LAURENCE PRITCHARD, Secretary.

PUBLICATIONS RECEIVED

The Stereoscopic Examination of Air Photographs. By Lieut. M. Hotine, R.E. The War Office: Professional Papers of the Air Survey Committee, No. 4. H.M. Stationery Office, Kingsway, London, W.C.2. Price 3s. 6d. net.

La Gloire des Ailes. By Louis Bleriot and Edouard Ramond. L'Aviation de Clement Ader a Costes. Les Editions de France, 20, Avenue Rapp, Paris. Price 12 francs.

Jarhbuch 1927 der Deutschen Versuchsanstalt für Luftfahrt E.V. R. Oldenbourg Verlag, Gluckstrasse, 8, Munich, Germany. Price, M.13.

AERONAUTICAL PATENT SPECIFICATION

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

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